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THE PROTOCOL OF AN ALTERNATE REIMBURSEMENT
SYSTEM FOR PART B OF MEDICARE

FOR THE
SOCIAL SECURITY ADMINISTRATION
U.S. DEPARTMENT OF HEALTH,
EDUCATION AND WELFARE

BY
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WASHINGTON, D.C.

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Prepared for
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by
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and
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I. INTRODUCTION AND SUMMARY

1.1 Objectives

Congress stated the prime objectives of an experiment with an alternate reimbursement systems for Medicare in the 1972 Social Security Amendments to be as follows:

To determine whether, and if so which, changes in methods of payment of reimbursement for health care and services under health programs established by the Social Security Act, including a change to methods based on negotiated rates, would have the effect of increasing the efficiency and economy of health services under such programs through the creation of additional incentives to the ends without adversely affecting the quality of such service.^{1/}

Following a study of the effects of the Medicare method of reimbursement on physicians' fees, the Health Insurance Benefits Advisory Council (HIBAC) formulated additional and more specific goals:

1. Experimentation with the concept of "participating physicians" in the Medicare program should be undertaken by the Administration in selected areas. The objective of such experiments would be to evaluate the willingness of physicians to participate in the program and at the same time eliminate the need for beneficiaries to pay out-of-pocket more than the deductible and coinsurance.
2. Experiment with any reasonable type and form of payment of physicians' services, such as fee schedule, capitation, and relative value scale, should be encouraged under Medicare for physicians desiring to participate in such a project as long as the costs are likely to be the same or less than those derived from the reasonable charge formula under the existing law. In the design of such experiments, it is necessary to give full consideration to regional differences, inherent inequities, inflation, and other variables.^{2/}

^{1/} Public Law 92-603, Section 222(b).

^{2/} USHEW, SSA, "A Report on the Results of the Study of Methods of Reimbursement for Physician Services Under Medicare", Health Insurance Benefits Advisory Council, July 1973, SS Pub. No. 92-73 (10-73), pp. 35-36.

Furthermore, HIBAC urged that 5 guiding principles be followed:

1. Any changes in the reimbursement for physicians' services under the Medicare program should not encourage a reduction in access to physicians' services by the beneficiaries; i.e., physician participation should not be discouraged.
2. Any changes in the present method of reimbursement under the Medicare program should take into account the various forms of payment for health care in the private sector.
3. No method of physician reimbursement should categorize the beneficiaries in a manner of payment significantly different from the general public.
4. Beneficiaries should not be liable for physicians' fees beyond the deductible and coinsurance amounts.
5. Attempts to change the reimbursement method should carry the reasonable expectation that physicians' fees will be equivalent to the levels of other existing reimbursement programs.^{1/}

With these objectives and principles in mind, Robert R. Nathan Associates, with the assistance of committees of physicians in Prince George's and Montgomery Counties, Maryland, has designed an alternate reimbursement system in which the incentives to economy and efficiency are introduced through the use of a relative value scale, with physicians participating in the fee-setting process.

^{1/} Ibid.

1.2 General Description of the Alternative Reimbursement System

The alternate system has several discrete elements or building blocks:

1. Physicians, knowledgeable nonphysicians and the Social Security Administration (SSA) will participate in the fee determination process and will consider the impact of different levels of reimbursement upon the utilization of services on the cost of care to the program and its participants. The fee determination will be based on relative value scale and conversion factors. The SSA will promulgate the fee schedule and invite physician participation in the experiment.

2. The participation of doctors will be individual and voluntary. Doctors will be encouraged to volunteer to participate in the experiment by payment in full of their allowed charges, including the deductible and coinsurance.

3. As a condition of participation, doctors will agree to accept assignment on all Medicare claims.

4. The claims processing and bill collecting will be expedited by the preparation of claims by the doctor's staff and by modification of the forms currently in use to indicate clearly the beneficiary's liability.

5. The fiscal agent will coordinate the entire claims process for the beneficiary, including both the amounts paid from the Social Security Trust Fund and, if the beneficiary wishes, amounts due from any private insurance the beneficiary may have.

6. Incentives to substitute ambulatory care for inhospital care (and thereby reduce hospitalization) will be built into the reimbursement formula. For example, doctors will be reimbursed for preparing a home health care service plan in order to provide an incentive for the use of home health care services.

7. An information program will be conducted, designed to inform the doctor, his staff, and the beneficiary of the nature of the system.

1.3 General Description of the Experiment

The reimbursement system will be studied to measure its impact on physician participation and cost containment. The design of the experiment is concerned with the methodology to be used for testing hypotheses about the effects of the alternate system. These hypotheses postulate certain differential impacts on costs, access to care and utilization patterns of the 2 methods of reimbursement, Medicare and the alternate method. The hypotheses deal with the level of costs and the rate of increase in costs. We hypothesize that the combined costs to SSA, the beneficiaries and the fiscal carrier of Part B under the alternate system will be less than under the present Medicare Part B system. Moreover, the beneficiaries' share of Part B costs would be less under the alternate system. A reduction in claims processing costs is predicted. In addition, we hypothesize no adverse effects on access to care, but a shift in utilization toward ambulatory care and reduced hospitalization. It is believed that SSA's burden will be contained better under the alternate system, provided the savings from reduced hospitalization (Part A costs) are included in the calculation.

The experiment consists of documenting, measuring, and analyzing the behavior of the panel of volunteer physicians and matched control group selected from the target population of office-based, fee-for-service physicians who serve Medicare patients in Montgomery and Prince George's Counties, Maryland. Physicians in the control group will have the same general location, age, and specialty as those on the volunteer panel. Data from the records of Blue Cross, Blue Shield and the experiment's fiscal agent will be used to analyze the number of Medicare patients served and the value of the claims by

type and place of service before and during the period of the experiment. A statistically significant difference between the behavior of the experimental and the control groups will indicate the effect the alternate reimbursement system has on physician, beneficiary, and fiscal agent behavior, its implications for access to physician's services under Medicare Part B, its effect and the costs of operating the Medicare program.

1.4 General Description of the Analysis

Primary data sources will be the files of the Medical Service of D.C. and Group Hospitalization, Inc. Data available in these files come from the processing of Medicare claims forms and include detailed information about beneficiaries, physicians, actual and allowed charges, services rendered, place of service, and so on. In addition, secondary sources, such as the publications of the medical societies and U.S. Census Bureau, will be used.

A special data bank will be created in order to facilitate the research and analysis. In it will be stored relevant statistics, covering the 2 years prior to the experiment and the time span of the experiment itself. These data will be necessary and sufficient to test the postulated hypotheses about the effects of the alternate reimbursement system.^{1/}

Covariance analysis will be the basic method of analysis. It corrects statistically for the effects of uncontrolled variables that cannot be properly standardized between classes, such as the volunteer physicians in the experiment and the nonparticipating physicians in the control group. By means of covariance analysis, differences in the expected values of dependent variables between the experimental and control groups of doctors will be studied to determine whether their absolute levels and rates of change have been affected by the changes in the reimbursement system.

^{1/} One datum that cannot be generated from the indicated data sources is the amount of bad debts absorbed by physicians under the present Medicare system.



II. DESIGN OF THE ALTERNATE REIMBURSEMENT SYSTEM

2.1 The Fee Determination Process

2.1.1 Introduction

Doctors, the Social Security Administration and the public will participate in the fee determination process and will consider the impact of different levels of reimbursement upon the utilization of services and on the cost of care to the program and its participants.

The terms of reference contemplate that physicians will be reimbursed for their services according to a schedule of fees offered by SSA, under which all Medicare Part B providers falling into a defined category will be paid the same fee for a defined service. It is contemplated that the fees will be arrived at by applying unit conversion factors to a scale of relative values for each of several thousand medical services provided in a geographic area.

As initially formulated, the fee schedules were to be determined by negotiations between representatives of the physicians and representatives of the government. This looked beyond the confines of the proposed experiment to a generalized application to all Medicare services (and by implication to even broader health insurance coverage), and it contemplated a genuine negotiating situation, in which physician negotiators would be constrained by the instructions of their colleague constituency and the government by statutory and budget limitations. Given such a situation, both sides would be forced to look to productivity gains (i.e., more patient services per physician-hour through

Why

improvements in technology and efficiencies in the delivery system) as the means of reconciling adherence to the fee schedule with increases in physicians earnings.

Within the limits of a fee-for-service system, a structure of negotiated fees will result in more stable and predictable costs in the long run than any other system. The "customary and prevailing" formula included in the Medicare legislation has proved to have a built-in escalator with no built-in limits except the physicians' own restraints. Efforts to suppress the escalation by freezes or unilaterally imposed indexing, however rational, will be seen as inequitable and will last only as long as physicians tolerate them or until physicians learn how to circumvent them. Without physician acceptance, "reasonable charges," however determined, sooner or later will be evaded (e.g., by fractionation of services or modified nomenclature for fee purposes) or ignored (by a decline in assigned claims) or Medicare patients will be faced with reduced access to care. Which-ever happens, the beneficiaries will bear the burden.


*Economic
Index*

Experience indicates that an unwilling medical profession cannot be forced to accept a level and structure of fees that it regards as unfair or exploitative. This does not mean that the profession must be permitted to write its own ticket, especially in dealing with a government insurance fund, but it must be invited to participate in the fee determination process, under ground rules that are patently reasonable in protecting the fund and respectful of the legitimate interests of physicians and patients. The ground rules would include equity in income progress between the medical profession and the population at large, reasonable price distinctions among medical services, and safeguards of

access and quality as well as insurance protection for Medicare beneficiaries, with budgetary limits on total program costs.

The reimbursement system contemplated here, as it would operate if applied nationwide to Medicare, assumes that these objectives are not incompatible. The government's commitment to fee-for-service as the prevailing mode of payment for medical care requires it to take account of the market in determining what fees it will reimburse; and its commitment to solo practice as the norm of practice limits the economies it can effect in the delivery system by the design of the fee structure. The doctors, on the other hand, are healers as well as businessmen and in general have shown neither the inclination nor the need to extract from their patients all that the traffic will bear. They can be motivated not only by concern for their patients' health, but also by consideration for their patients' financial welfare and by the desire to simplify their business procedures. So the negotiations over methods of reimbursement contain elements of common concern along with the elements of divergent interests. As in any negotiations between providers of services and those who pay for them, there are compelling advantages for both in reaching agreement that reflects their common interests in an equitable, workable, and stable arrangement.

To facilitate the negotiation it is proposed that the Health Insurance Benefits Advisory Council (HIBAC) be asked to participate as the impresario, whose only interest is in an equitable result, who would preside over the negotiations and direct the staff work on which the parties would draw in their deliberations. The choice of HIBAC seems appropriate because of its statutory standing and its position, attached



to SSA, but independent of it since all members are appointed by the President and report to the Secretary of Health, Education and Welfare.

2.1.2 Legal and Legislative Issues

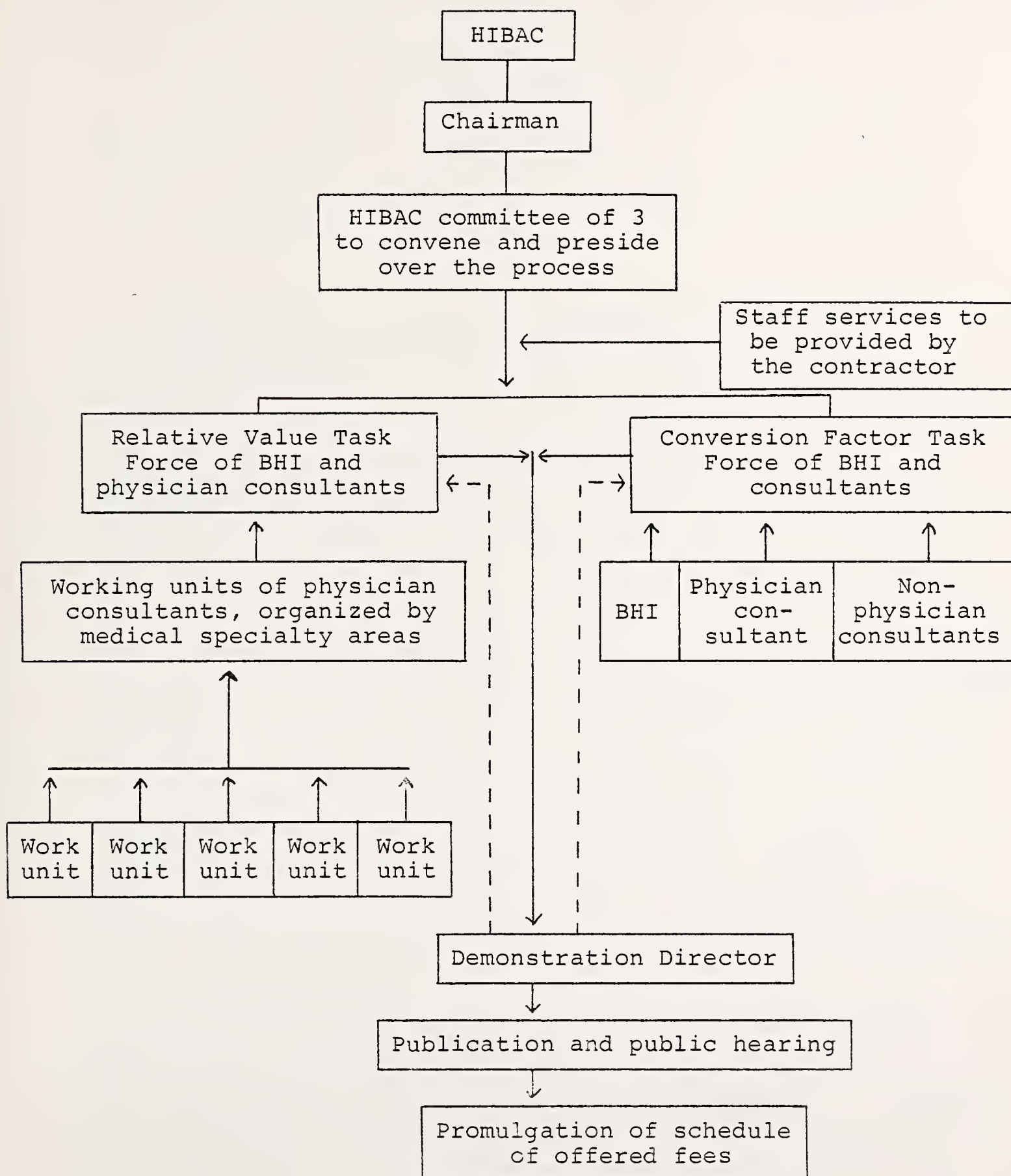
It became apparent even before the design of the protocol was contracted for that nationwide application of a process such as that outlined would depend on, first, a successful demonstration of its feasibility and, second, a suitable statutory and legal framework, including legislative authorization for the government to negotiate fees and to require assignment of all Medicare claims (which would require changes in the statute). A legal opinion concerning the validity of this protocol under the federal antitrust laws has been received from Messrs. Arent, Fox, Kintner, Plotkin and Kahn, legal counsel to the contractor, and is attached as appendix A.

2.1.3 The Fee Determination Procedure for the Experiment

The Framework

In the experiment the actors will be the Bureau of Health Insurance for the government and a group of consultants, mostly physicians but also representatives of the carrier and of beneficiary interests, with HIBAC to preside, facilitate, and direct staff work. The role of the participants in various phases of the fee determination process are presented in figure 1. The contractor will perform the staff function, in order that the scope, sources, and methodologies may be an integral part of the process to be demonstrated.

Figure 1. Fee Determination Process for the Experiment




To complete the determination of fees in a reasonable time, SSA must be prepared to make prompt and final decisions. Decision-making authority must be vested in an official who is accessible, who has time to keep fully informed, who has at his disposal the necessary staff support, and who is authorized to make commitments binding on the government without delaying operation of the project or the implementation of decisions agreed to; in other words, the authority and the willingness to "sign off."

These functions shall be centered in the Bureau of Health Insurance, with staff support from the Office of Research and Statistics, the Office of General Counsel and Administrative/Budget Offices. The bureau chief shall designate one of his principal subordinate officers as director of the experiment, with authority to organize the SSA activities leading to an operational fee schedule, and to promulgate it as approved. The chief and his principal staff (including ORS and General Counsel) shall lay down agency guidelines conforming to statute and HIBAC recommendations for the instruction of the director of the experiment. These will include legal authority and limitations, procedural and accounting requirements, and budget formulas for guidance of BHI staff and HIBAC staff (the contractor) in formulating the budgetary constraint (as specified below). Unless explicitly amended, the current regulations in effect in Medicare Part B will be operative for the experiment, as, for example, the appeals procedures for beneficiaries and physicians.

The director shall designate BHI representatives for each of the 2 principal task forces: one to recommend a suitable relative value scale, and one to recommend a suitable set of conversion factors (see below). These representatives may include one or more program, administrative, medical, or

economics specialists, selected for their knowledge of the operations and benefits of the Medicare program, the protection of beneficiary interests and conservation of program funds. Their functions will be to confer with the nongovernment consultants and staff, to review the staff's data and analyses as evidence of customary fee practices and reasonable charges and the impact on beneficiaries, physicians, and program, and to make recommendations to the director. The director may, however, on his own motion participate in the deliberations of the task forces.

The scheduled fees will be promulgated and offered by SSA to physicians after formal and detailed consultations between SSA and selected consultants whose efforts are organized by HIBAC. The consultants will include physicians designated for their knowledge of the structure of fees in the area and how they are determined, and other specialists knowledgeable of the ways in which various methods of reimbursement affect patients and carriers.

The consultants will be designated for each task force. The members of the task forces will be designated by local medical societies if the societies are willing; or alternatively,  by the Medical Care Foundations of Montgomery and Prince George's Counties, if they are willing. In the event that these organizations do not wish to assume this responsibility, the contractor, working with the physician consultants who have participated in Phase I, will recruit consultants and nominate them to SSA. The consultants to advise on the effects on patients of the alternate reimbursement methods will be nominated by the contractor, and those to advise on the effects on the carriers by Medical Service of D.C.

The chairman of HIBAC will name a committee of 3, preferably resident in the D.C. metropolitan area (and preferably but not necessarily members of HIBAC, but not including any employees of the government), to initiate meetings, prepare agenda, preside over the deliberations, and ensure that the staff work of the contractor is useful in determining fees. The HIBAC representatives will also make sure that the prescribed procedures, criteria, and guidelines are complied with in the process.

In the interest of due process, the names of the designated physician consultants will be published, by individual letter and by public notice, to all practicing physicians in the 2 counties and the District of Columbia, along with a description of the particulars of the proposed method of reimbursement. Physicians will be invited to submit their views on the applicability or adaptation to the proposed method of reimbursement of the current relative value scale used by the Medical Service of D.C., as it applies to their respective specialties.

Relative Values

A relative value scale (RVS) is a classification of the several thousand professional standard services, valued according to the relative prices they command in fee-for-service medical practice. The relative values are expressed as multiples of an arbitrary unit such that the relationship of the price for a given service to the price of another service will be the same wherever the RVS is used, even though the absolute (dollar) values may be different. If a routine office is 5 units in one place, it will be 5 units in another where the same RVS is used, even if the actual

price is \$10 in the first place and \$15 in the second. The relative values reflect in the first instance the values of the "marketplace," tempered by considerations of skill and time required, specialized expertise required, and difficulty inherent in the procedure employed. A number of relative value scales have been formulated, notably that used by the California Medical Society. The Medical Society of the District of Columbia originally published a relative value scale in 1966. It was revised in 1968 and has been continuously updated.

The RVS approach is especially suited to establishing physicians' fees for a fixed period of time. Physicians have become familiar with the tables of unit values and regard most of them as representative of the complexity and risk of each procedure and the professional time and degree of skill the procedure takes, be it a brief office visit or open heart surgery. Thus, the existing RVS should be readily adopted by the physicians in the 2 counties, with a minimum of amendments to update it or to reflect local medical practice. When the scale coupled with agreed-upon conversion factor (i.e., a dollar amount to be applied to the units set forth in the RVS), fees are readily calculated. The resulting fee schedule can be varied by revising either the RVS or the conversion factors.


The foreward to the original relative value scale of the D.C. Medical Society reports that:

Three and one-half years of study, consideration and consultation and three months of concentrated work were entailed in completing the 1966 edition....

The Relative Value Scale is divided into five separate independent sections: MEDICAL SERVICE, ANESTHESIA, SURGERY, RADIOLOGY, CLINICAL LABORATORY AND PATHOLOGY. The relative values described in each section of the Scale should not be related to values set forth in any section. RELATIVE VALUES EXIST ONLY WITHIN EACH RESPECTIVE SECTION.

Relative value scales need periodic reassessment to keep in line with changes in medical technology and practice. Obsolete procedures may need to be dropped and new ones added. Changes in methods of doing the procedures may alter the time and skill required, changing the relative value. The D.C. Medical Society created a continuing Relative Value Study Committee to study and recommend required changes in the scale. Since 1973, this committee, chaired by Dr. Kermit Hanson, has been preparing a revision using the AMA Physicians' Current Procedural Terminology (CPT). Specialty sections of the Society recommend relative values for the procedures in their areas to the committee, which brings all submitted values into relationship in each section. Dr. Hanson expects a revision of the D.C. relative value scale to be available in January 1976.

The new RVS will represent a significant change. Finer distinctions are made between services. For example, office medical services are differentiated for brief, limited, intermediate, and comprehensive services, and a distinction is made between new and established patients of different age groups. As a result, the revised scale will have approximately 23 procedures under office medical services, while the current version has only 8. This multiplication of procedures makes it possible for fees to reflect more precisely the nature and value of services rendered.



The finer coding system will facilitate the use of the relative value scale to provide incentives to ambulatory care. For example, under home medical services is the provision of "minimal service, not necessarily requiring presence of the physician (CPT code 90130)." This might be an appropriate category for home health care planning which can be done by the physician's nurse or other staff member.

The relative value scale is especially suited to testing the response of physicians to monetary incentives and the changes in the pattern of health care delivery that result. The relative value will be used in a formula that also incorporates the price of the basic unit and other variables representing factors that might be given special weight in the reimbursement system; i.e., $\text{reimbursement} = \text{RVS} \times \text{unit price} + X$. The X factors might be for physician specialty, for geographic location, or for ambulatory care for selected surgical procedures that can be performed on an inpatient or outpatient basis, such as endoscopy.

The HIBAC committee, with the assistance of the contractor acting in a staff function, will organize a task force on relative values, composed of 10 to 20 physicians (designated as specified above) from the 5 recognized specialty areas -- medicine, surgery, anesthesiology, radiology, and pathology/laboratory -- along with designated representatives of BHI. The physicians will be organized into working units of 2 to 5 (who may be consulted in groups or singly) to review the D.C. relative value scale for suitability, drawing on the expertise of practitioners in the several specialties and subspecialties dealing with Medicare patients. They will concentrate attention on the most important Medicare

services, considering both the frequency and the amount of claims. In evaluating the suitability of the D.C. RVS for the experiment and in recommending changes, the consultants will be guided by the following criteria:

1. Relative values should reflect, as far as possible, market relationships prevailing in the area; that is, the relationships among the values assigned to the various services should approximate the relationships observed among the prevailing charges for those services, as documented in the recent Blue Shield/Medicare experience; except that --

2. Where departures from prevailing market relationships can be expected to encourage modes of delivery of medical care that will be less costly to the program and consistent with good medical practice, the relative values should be tilted to provide incentives to cost containment. Specifically, when procedures can be performed on either an inpatient or outpatient basis, the relative values should encourage outpatient services where this is consistent with the patient's interest.

3. Relative values should not interpose barriers between physicians and Medicare patients in providing needed care, or encourage overuse or unproductive use of physicians' services.

The consultants will review the divisions of the RVS in light of the comments received from local physicians and the advice of specialist experts. They will also take account of experience with similar relative value scales in other areas. In this review, the contractor will provide staff support through its own personnel, to the extent requested

by the consultants. The working units will formulate their findings for the task force which will harmonize the relative values from the working units and submit its finding to the director of the experiment.

The contractor will prepare for the consultants and for the BHI an analysis of the recommended relative values to indicate (as far as it is possible to do so in anticipation) what effects they may be expected to have on the modes of delivery, the frequencies of services, and the costs to the program and to patients, considering both Part B and Part A. *

After review, BHI will propose for adoption a relative value scale for Medicare reimbursement. This will be referred back to the consultants for review by them and by the medical societies and other physician groups, including the respective specialist groups directly concerned. A time limit will be set for responses. At the same time, BHI will give public notice of the proposed RVS and solicit comments from all interested sources. This review will take 2 months. After considering all comments and analyzing the likely effects on the program and its participants, the experiment director will adopt the RVS to be used in the fee schedule to be offered.

Conversion Factors

At the same time, a separate task force of consultants to SSA will be designated to recommend a set of conversion factors appropriate for the area and a means of keeping them current. The task force will consist of physicians from various specialties, along with one or more medical economists and representatives of the fiscal agent chosen by organized

medical groups, if they so desire; or by the contractor. Physicians in private practice will be in a majority.

The determination of conversion factors will proceed from an analysis of the most recent data on implicit conversion factors for the most important Medicare services; i.e., conversion factors derived for specific procedures by dividing the RVS relative value for each procedure into the prevailing fees for the same procedure as reported by Blue Shield.^{1/} (For the initial analysis, the relative values will be those appearing in the latest RVS used by the Medical Service of D.C., and the prevailing fees will be those occurring at the 50th and 75th percentiles of the combined Medicare/Blue Shield distributions of fees paid in the most recent 12 months.) *

The most important services^{2/} will be analyzed statistically by the staff, separately for the 5 divisions of the relative value scale, to determine and to account for variations among implicit conversion factors at the 50th and 75th percentiles. The variations can be attributable to (1) imperfections in the RVS used in the analysis; (2) errors in applying or reporting the relative values; or (3) variations among physicians or classes of physicians in their charges for a given procedure. The first source is expected to be remedied by the revision of the RVS about to be published. The second we will try to eliminate by excluding from the analysis observations which appear to be obvious errors or

^{1/} For methodology, see appendix C.

^{2/} Defined, for example, as those accounting for 80 percent or more of claims or claims costs, or alternatively, those occurring with some minimum frequency (say, 50 claims per year), as analyses of the frequency distribution might indicate.

anomalies that cannot be explained ("purifying the data"). The third source of variation is the object of our analysis, in our effort to arrive at a set of conversion factors that will relate the RVS to the level of prevailing charges.

Two kinds of analysis will be performed on the "purified" data on implicit conversion factors for procedures constituting 80 percent or more of claims; they will be performed separately for the 5 divisions. The first is an analysis of the range and dispersion of the 50th and 75th percentiles of the conversion factors for individual procedures, to determine the means (averages) and variability around the means, in order to answer the question: If the average conversion factor for a division (medical, surgical, etc.) were applied to all procedures in the division, how close would it come to the actual prevailing charges for the individual procedures in that division? The second analysis will be a correlation of conversion factors with relative values to determine whether conversion factors were consistently higher or lower for high or low relative values; i.e., whether procedures with high unit values commanded higher or lower conversion factors. Similarly, the analysis will be directed at determining whether procedures with a high volume of use consistently carried a lower conversion factor while infrequently used procedures had a higher conversion factor, or the opposite. Variations from the mean values (i.e., the means of the implicit conversion factors for the specific services, based on the 50th and 75th percentiles) will be analyzed for each division to determine whether they varied systematically according to subdivisions, implying the desirability of different conversion factors for subdivisions. For example, if all or most ophthalmological surgical services were conspicuously higher

or lower than the mean, the implicit conversion factors would be examined to determine whether they were sufficiently homogeneous by class of service to warrant establishing a separate conversion factor for a subclass. Those that were random would be assumed not to discriminate in favor of or against any group of physicians. Consideration would be given also to the modal (i.e., most frequent) charge between the 50th and 75th percentiles for each important service, and the conversion factor derived from averaging these.

The results of these analyses will be made available to the task force, together with the mean average implicit conversion factors at the 50th and 75th percentiles for each division (and subdivision); that is, given the RVS, these conversion factors multiplied by relative values would equal the prevailing charges at the 50th and 75th percentiles in the latest year for which statistics are available. These will then be updated to apply to the current period by an indexing procedure, described below.

Also see Index

Conversion factors to be recommended to SSA will not exceed the current figure for the 75th percentile for any division; that is, conversion factors multiplied by the appropriate relative values for individual procedures will not exceed the 75th percentile of actual charges. To determine the effect of prospective conversion factors, prospective budgets will be calculated, estimating the aggregate physicians' charges for covered services, the aggregate patients' costs, and the costs to the program.^{1/} For this purpose the distribution of services for which Medicare claims were filed in the preceding year will be

^{1/} For methodology, see appendix C.

projected on the estimated Medicare population for the budget year, with such adjustments as can be estimated for changes in the pattern of delivery, considering both Part B and Part A. The budget will be calculated using RVS values in combination with alternative conversion factors; this will be compared with the estimated costs of the same schedule of services at "customary and prevailing" rates.

with Indox applied

For purposes of the experiment, these analyses will be prepared by the contractor, acting as staff to HIBAC and the designated consultants. If such a procedure were to be applied generally, the staff work would be done by a staff under HIBAC direction, serving the parties to the fee negotiation and keeping Medicare costs under continuous surveillance.

*At the 75%
Rate.*

On the basis of these analyses, the task force will recommend conversion factors to SSA. SSA will formulate a proposed schedule of conversion factors, which will be publicly noticed, considered at public hearings along with the proposed relative value scale, and subsequently promulgated, concurrently with the RVS. Once promulgated, conversion factors will remain in effect for 6 months. They will be examined and evaluated after 6 months, but SSA will be under no obligation to revise and update them at intervals more frequent than 1 year. The annual reviews will particularly take account of the effects of the fee schedule on program costs, as measured against prospective budgets and against the cost of providing the same services at "customary and prevailing" fees.

*Why not just
use the fee as the
fee schedule instead
of going thru the above
exercise?*

Updating Conversion Factors ("Indexing")

Conversion factors, being in effect unit prices, require periodic updating to keep abreast of economic change, especially in times of inflation. The updating formula requires recognition of changes in the costs incurred by physicians in operating their practices, including the costs of insurance. This adjustment stabilizes real costs by compensating for the effects of inflation. The updating also requires recognition of the effect of inflation on the purchasing power of physicians' net earned incomes, by adjusting for changes in the cost of living. It is assumed that physicians benefit from increases in their productivity by being able to perform more services per year, and that no explicit adjustment of conversion factors on this account is required.

Though updating for economic change is not technically difficult, so many preconceptions surround it that it should be a subject of consultations between SSA and affected physicians. The actors will be the same as those who determine the conversion factors. The consultations will be preceded by an analysis of the elements of cost of physicians' practice and their relative importances, suitable data to document them, and the form of indexes to measure time-to-time changes.^{1/} Specific allowances will need to be made for costs of professional insurance while that situation is so uncertain and changeable.

The BLS Consumer Price Index for the Washington metropolitan area can be used to measure changes in purchasing

^{1/} Data on office wages and office rents are available from secondary sources. Some primary data might be required for other expenses.

power of physicians' net earnings or, in the absence of measures of net earnings, changes in per capita income of the population net of the effects of overall productivity (output per worker). The index of change in costs of physicians' practice and the index of change in costs of living will be combined, the first being weighted by the proportion of expense to gross income and the second by the proportion of net income to gross. The combined index, as a measure of the effect of economic change on physicians fees, will be a starting point in the updating process, which will also consider specific factors (not necessarily quantifiable or uniform for all physicians) such as professional insurance premiums.

2.1.4 Outline of a Projected Nationwide Application

The Framework

It is assumed that application of the alternate reimbursement system on a national scale would be authorized and prescribed by statute. The following sections outline how it would be structured and operated.

It is proposed that the chairman of HIBAC appoint a subcommittee of 3 persons (1 practicing physician, 1 non-practicing physician not an employee of the government, 1 nonphysician to be chairman) to convene and preside over the negotiations. SSA would finance and the HIBAC subcommittee would employ a staff director and a small staff to serve the subcommittee and the parties to the negotiation. The staff would compile and analyze relevant material on fee levels, changes, and trends; physicians' costs; costs to patients,

carriers and the fund; prospective program costs and budgets; and other material as directed by the subcommittee, to illuminate the proceedings and reduce controversy by obtaining agreement on a common basis of fact. The staff would also keep the method of reimbursement and its effects under continuous surveillance, to be able to report periodically to the subcommittee and the parties.

Thus, the actors in the fee determination would represent the physicians, the government, and the public. Assuming an alternate system of reimbursement for Medicare nationwide, the physicians would be represented by their existing organizations, the government by authorized officials of HEW, and the public by HIBAC.

The negotiations would be conducted in 2 phases: (1) national negotiations to arrive at a relative value scale; and (2) state-by-state or area-by-area negotiations to arrive at suitable conversion factors.

Relative Value
Scale (RVS)

In determining the RVS for use in Medicare reimbursement, it is proposed that the physicians be represented by existing physicians' organizations, such as the specialty boards or the American Medical Association, and specifically by a task force of physicians designated for the purpose of the respective governing boards.^{1/} The task force will be composed of work units representing the principal regions

^{1/} The government could contract with the professional organization for this work. If they were unable or unwilling to do it, the RVS could be developed by groups of practicing physicians designated for the purpose.

of the United States and the principal recognized specialties, each of which would rate the services performed by its members according to relative values, using a common standard unit for each of the specialty branches.^{1/} The task force would serve as a coordinating committee to effect a concordance of relative values to harmonize the several specialties.

In arriving at relative values suitable for use as a basis for Medicare reimbursement, the task force would be guided by the same criteria as discussed earlier:

1. Relative values should, as far as possible, reflect prevailing market relationships.

2. Where departures from those relationships would encourage less costly modes of delivery of medical care, consistent with good medical practice, the relative values should be tilted to provide incentives to cost containment.

3. Relative values should not interpose barriers between physician and Medicare patients in the quality of care or in the provision of needed care or encourage overuse or unproductive use of physicians' services.

In formulating their proposal for RVS, the working units would have at their disposal relative value scales already used in the United States, as well as staff analyses of relative prevailing charges at the 50th and 75th percentiles from all Medicare fiscal carriers, in order to be informed of any significant regional differences in relative values. The output of this process would be an RVS which

^{1/} Much of this work could be done by members of the work units separately, using techniques such as the Delphi method to converge on a consensus, with only occasional meetings of the work unit as a whole.

(1) would in general resemble scales in use, since these have been similarly formulated; and (2) would represent a consensus of professional judgment. It would be presented by the task force to the governing board, as the AMA's proposal to SSA. A negotiating committee drawn from the task force would be designated. In practice, this entire process might require 6 to 12 months, if pursued energetically.

The RVS would be submitted to SSA as the profession's proposal. It would be reviewed by SSA and by such consultants as SSA might designate. It would also be published, and comments would be solicited. On the basis of these reviews, negotiations would be undertaken between SSA and professional representatives, under the aegis of HIBAC, to resolve differences. Particular attention would be focused on the minority of services frequently performed for Medicare patients which constitute a large fraction of number and cost of Medicare claims. There does not seem to be much reason to anticipate great difficulty in reaching agreement.

Conversion Factors

Unlike relative values, conversion factors can be expected to differ, reflecting price differences, from area to area. The actors in negotiating conversion factors with SSA would be state or, particularly in the case of large metropolitan areas, county medical societies. Since the conversion factor is the primary instrument of price change, it can be expected that bargaining will be more intense, with more possibility of disagreement, than in the case of RVS.

Determination of the conversion factor involves 2 elements, both negotiable: (1) the dollar multipliers to be

applied to relative values to determine the amount of the fee for each service and (2) the formula for updating the conversion factors to take account, as the law requires, of "economic change," defined by regulation to include changes in the general earnings level net of changes in productivity, and changes in expenses of physicians. The first determines the level of fees; the second determines the rate at which they will rise.

Preliminary to negotiation of conversion factors state by state, negotiators for SSA and for the medical profession, under the auspices of the HIBAC committee, would negotiate the terms of reference, guidelines, and instructions for state negotiations. It is contemplated that negotiations will proceed from a statistical analysis of the conversion factors implicit in the prevailing fees, derived by dividing the relative values (number of relative units) for specific services into the actual fees prevailing at the 50th and 75th percentiles for the same services. This would be done for the important services in each of the major classes of services. For each class an average (mean) of the specific implicit conversion factors would be calculated, along with the standard deviation to measure the extent of variations from the mean. The variability among conversion factors would be analyzed to determine whether deviations from the mean were systematic or random.

Each of these analyses would be performed for charges at the 50th and 75th percentiles, which will yield lower and upper limits. To narrow the range for purposes of arriving at an agreed-on set of conversion factors, the negotiators would be guided by the overall constraint of a prospective budget for each state. The budget would be formulated by

applying to the Medicare population adjusted for expected changes in size and composition, the rates of utilization of services projected from experience priced at the preceding year's reasonable charges with an appropriate adjustment for inflation of physicians' costs and for increases in average real income.

The purposes of this analysis at the national level would be (1) to identify the data sources, data, and data processing required; (2) to demonstrate the methodology; and (3) to arrive at guidelines and instructions for use in state negotiations. The instructions would detail the method for determining implicit conversion factors for the several classes, for analyzing deviations and reducing them where possible, and the role of the prospective budget in the negotiations.

Negotiations at the state level would be carried on between designated representatives of the state medical society and a team of negotiators from the regional offices of SSA.^{1/} They would follow the procedures and criteria developed in the national negotiations, taking into account local practices and conditions that may vary from the general pattern. These might include local pricing practices, such as forgiveness of coinsurance, and local costs, such as unusual insurance premiums. The effort throughout would be to approximate norms which would adequately compensate physicians in full for Medicare services, thus maximizing beneficiaries' access to physicians of their choice under a regimen of universal assignment, while at the same time constraining program costs.

^{1/} It is contemplated that a team from each regional office would be trained in BHI and would carry on all negotiations, in order to gain from experience from state to state.

In many states conditions are too variable to permit the use of a single set of conversion factors throughout the state. This is particularly true in large states or those with divergent conditions, between metropolitan and rural areas or between regions within the state. To the extent that different carriers serve different regions or that carriers differentiate in their claims records between areas within states, the analysis of charges should be disaggregated to provide a basis for different conversion factors.^{1/} Since it may appear a priori that local markets differ, representatives of county medical societies would participate in the negotiations.

It may be expected that negotiators will have more difficulty in reaching agreement on conversion factors than on the RVS. The long history of friction and distrust between the medical profession and the government has left debris which will have to be cleared away in the process. HIBAC can mediate, but agreement will be possible only if both sides exercise restraint and flexibility and renounce the use of their "ultimate weapons" -- on the one hand, the right of the government to issue its own fee schedule unilaterally, and on the other hand, the right of doctors to refuse to treat Medicare patients on the terms offered. The doctors must be convinced that the government is negotiating in good faith and not merely going through the motions. The government must be convinced that the doctors are seeking no more than "fair market value" for their services. It is not possible to say categorically how agreement will be reached in all cases; it may require prolonged negotiations and

^{1/} It would, of course, be possible in the future to set up records to identify individual counties or metropolitan areas.

perhaps some mediation by HIBAC or other authorities ad hoc. It is possible to say, on the basis of experience of the past 25 years with negotiations in a great variety of situations, that an impasse does not last indefinitely and that sooner or later agreement is reached. The experience suggests that in nationwide negotiations conducted separately in a number of geographic units, the first agreement may be the most difficult and after a few are reached others tend to follow. Thus, it may be wise to begin where conditions are optimal and prospects best.

An absolute prerequisite to successful negotiations is that the government's negotiators be vested with the authority to conclude binding agreements within limits that are explicit, unambiguous, and fully understood by both sides. This requires the negotiators to be of sufficient caliber to entrust with this responsibility and to make decisions. They must be trained beforehand, and as far as possible there should be continuity of personnel to take advantage of experience. They should be supplied with unambiguous guidelines, and if there are a priori limitations on the negotiations, these should be known to both parties in advance. There should be ample opportunity for negotiators to consult their principals during the course of the negotiations, and instructions should be prompt and decisive.

Negotiations will be facilitated if the parties proceed from a common basis of fact and analysis. Consequently, great importance attaches to the staff work initiated by HIBAC and provided to the parties.

2.2 Payment In Full of Allowed Charges, Including Deductible and Coinsurance

Voluntary participation by individual physicians is a datum for the alternate system. The challenge is to incorporate in the design an element that will be sufficiently attractive to persuade doctors to volunteer but that will not have adverse effects on the objective of cost containment. The proposition that the doctors receive payment-in-full for covered benefits was very well received by our physician consultants.

In operation, this provision of the alternate reimbursement system would require that the doctor accept assignment and submit a claims form Form 1490 with charges in conformity with the relative value scale and the designated conversion factor. The fiscal agent would reimburse the doctor for the full amount of the allowed charges for covered services and would be responsible for collecting the deductible and coinsurance portion from the beneficiary.

The doctors viewed payment-in-full as a strong inducement to participate in the experiment. From their perspective, this aspect of the alternate reimbursement system means guaranteed payment, elimination of bad debts, fewer bills and statements, reduced bookkeeping, and more working capital.

From the perspective of the Social Security Administration, payment-in-full represents an extension of credit to the beneficiaries through prompt payment of their deductible and coinsurance liability in their physicians' bills, and a possible burden of bad debts and uncollectibles.

We have tried unsuccessfully to get data on the extent of bad debts among Medicare beneficiaries. The doctors believe that it is negligible on assigned claims. It is significant, however, on unassigned claims and explains why some doctors have decided to follow the policy of accepting assignment across the board on Medicare patients. It is our hypothesis that the bad-debt problem will be negligible in the proposed system; first, because older people are good credit risks, and second, because SSA could be given the power (if it wishes to exercise it) to withhold Social Security payments.

One experience that offers some relevant insights is a project undertaken in the late 1960's by the Wisconsin Physician Service (WPS), the Wisconsin Blue Shield plan. The project provided up to \$500 credit for health services to WPS subscribers who were enrolled through employer groups. A plastic "WPS Health Care Charge Card" was issued at no cost to each person in the program. Imprinters were made available to doctors at a leasing charge of \$20 a year. Each subscriber using the charge card was billed once a month and was expected to pay within 25 days of the date of the statement. A service charge was made on unpaid balances beyond that date. Providers participating in the program signed a contract and agreed to a levy of 3 percent on the uninsured portion of the patient's medical costs. This service fee was absorbed by the physician in return for prompt, full payment of his customary and reasonable charges. The program was aborted because questions were raised about a conflict with WPS's enabling legislation and a possible violation of small banking laws. The program was operational for 6 months. In that time although more than 100 claims were filed, only \$300 in bad debts occurred; these were later turned over to a collection agency.^{1/}

^{1/} Information obtained from Mr. Jack Emory of National Blue Shield Association.

The alternate reimbursement system will incorporate payment-in-full but make no levy on the doctors, since a primary objective is to persuade doctors to take part in the experiment. Efforts will be made to minimize the risk of bad debts. Beneficiaries will be helped to file claims for both Medicare and complementary private insurance. The practice now in effect of transferring the Explanation of Medicare Benefits (EOMB) to the private insurance division of Medical Service of D.C., where it is accepted as a basis for reimbursement, will continue and arrangements will be made for reimbursement to the fiscal agent during the experiment. However, to integrate Medicare claims processing and all other kinds of complementary insurance claims presents substantial and perhaps irresolvable difficulties due to the variety of policies sold and the limitations of the experimental situation.^{1/} Therefore, beneficiaries will be billed and collection efforts will be made, and no interest charges will be imposed upon beneficiaries during the experiment. Knowledge of the amount of bad debts resulting from payment-in-full is considered a major research finding.

Medicaid

^{1/} For a more detailed discussion, see section 2.4 on claims processing and bill collecting procedures.

2.3 Acceptance of Assignment on All Medicare Claims

A contract specifying the conditions of participation will be signed by the volunteer physician and the fiscal agent. One of the conditions in this contract is that the physician accept assignment on all Medicare beneficiaries who are willing to assign their claims. This condition of participation was recommended by HIBAC. Assignment limits the beneficiary's liability to the annual deductible and 20 percent of the remaining allowed charge. In recent years, approximately 50 percent of the Medicare claims in the Washington metropolitan area were accepted on assignment, which is slightly lower than the national net assignment rate.^{1/} However, the application of economic indices in calculating reasonable charges has just begun, and its impact on the assignment rate, if any, has not yet been felt. Prevailing charges were being controlled before the Economic Stabilization Program (ESP), and individual physician fees were being controlled during ESP. It is generally thought that these controls have had an impact on the secular decline in the assignment rate.

A Research Triangle Institute study for HIBAC found that the financial situation of the patient to be an "extremely important" factor influencing the acceptance of assignment by physicians in the 6 states surveyed. The factor considered most often by physicians in all areas was the patient's ability to pay.^{2/} The higher the patient's income, the less likely it is that the physician will forgo the option of

1/ USHEW, SSA, Assignment Rates for Supplementary Medical Insurance Claims, Calendar Year 1973, updated by correspondence from Carl Josephson, Division of Health Insurance Studies, dated August 13, 1975.

2/ HIBAC's summary of this findings says "if a patient appeared financially capable of paying the bill, his physician would be inclined to refuse assignment and to bill the patient directly and perhaps for more than the 'reasonable' charge." USHEW, SSA, "A Report on the Results of the Study of Methods....," HIBAC, p. 21.

charging the patient a higher fee. Two somewhat related factors were cited in the study as predisposing the physician to accept assignment: (1) the size of the bill; and (2) the patient's having Medicaid. A personal relationship with the patient was cited as another factor leading the physician to accept assignment.

Age or number of years in practice appears to influence the decision to accept assignment. In a sample of 89 randomly selected physicians in Prince George's and Montgomery Counties, doctors with fewer than 20 years' practice were more likely to accept assignment than doctors who had been in practice longer. (See table 1.)

Among our physician consultants, we had doctors who always, sometimes, or never took assignment. We had an internist who accepted assignment across the board and a general practitioner who never did. Another doctor was a surgeon who decided case-by-case, depending upon his patient's income level. How the decision to accept assignment or not is reached is not clear. What is evident is that economics alone does not explain it.

About 74 percent of the physicians in the random sample accepted assignment on some claims. About 26 percent of all physicians in the sample did not accept assignment on any claims for services performed in 1974. There was, however, considerable variation among the specialty groups, as shown in table 2. The statistics suggest that in the target population for this experiment, psychiatrists are most likely not to accept assignment and that an appreciable number of general practitioners may be reluctant to do so. Specialty group E, other specialties, represented in the sample by 4 radiologists and one anesthesiologist, had a

Table 1. Physicians Who Never Accepted Assignment in 1974

Specialty group	Number of physicians	Percentage who accepted no claims on assignment
A. General practice.....	17	41.2
B. Medical specialties.....	24	8.3
C. Surgical specialties.....	36	27.8
D. Psychiatric medicine.....	7	57.1
E. Other specialties.....	5	0
Total.....	89	25.9

Table 2. Acceptance of Assignment by Younger and Older Physicians in Various Specialty Groups

Specialty group	Less than 20 years in practice		More than 20 years in practice	
	Number of physicians	Percentage accepting half or more	Number of physicians	Percentage accepting half or more
A. General practice.....	6	33	11	18
B. Medical specialties....	14	64	10	0
C. Surgical specialties....	16	18	20	20
D. Psychiatric medicine.....	5	60	2	0
E. Other specialties....	4	100	1	100
Total.....	45	47	44	16

uniformly high acceptance rate during 1974. All members of specialty group E accepted assignment on most claims.

The requirement that physicians accept assignment on all Medicare patients will affect the number who volunteer for the experiment. Our doctor consultants have stressed the individualistic attitudes of the solo practitioner: A basic philosophy of laissez-faire predominates among them. Visits to doctors' offices in the area confirm the statements that practices and office procedures differ significantly, reflecting different medical specialties, location of the practice, physical layout of the office, and personal preferences of the physician and his staff.

Moreover, a physician is motivated by both an economic interest and a humanitarian concern. The decision to accept assignment may be based on one or the other or the combination of these factors. The relationship between the level of allowed charges and the doctor's idea of a "reasonable" charge is important. His estimation of the risk of an uncollectible bill is also a significant factor in his decision. The idea is current among some doctors that patients will pay their primary-care physician, on whom they rely for continuing care, but are less likely to reimburse a specialist-consultant they see only once. A doctor's belief about the therapeutic value of the financial transaction between the patient and doctor influences his decision about assignment.

Although all physicians who participate in the experiment will agree to accept assignment on Medicare claims, beneficiaries do have the right not to assign their claims, and doctors in the experiment are free to provide services to such patients. Our doctor consultants found it difficult to conceive of a situation in which a patient would

not wish to have them accept assignment. It appears to be a rare occurrence. Such a patient would be suspected, according to one doctor, of planning to receive a Medicare check with no intention of paying the doctor. Therefore, at the start of the experiment, all nonassigned claims reporting services by physicians in the experiment will be investigated by a call to the physician and beneficiary to determine the reason for the nonassignment and whether payment has been made and received. The participation agreement requires that the doctor charge all his patients according to the schedule of fees. However, if nonassigned claims represent bad debt, this refinement will be reexamined. Throughout the experiment, nonassigned claims reporting services by physicians in the experiment would be tallied; should they appear with any frequency for an individual physician, an explanation from him and the beneficiaries would be sought.

EXAMPLE

REIMBURSEMENT PROJECT
PARTICIPATION AGREEMENT

This Agreement is made between _____,
of _____ (the "Fiscal Agent") and _____
_____, of _____ (the "Physician").

WHEREAS, the Fiscal Agent and the Secretary of HEW
have agreed to implement an alternative reimbursement system for
Medicare Part B pursuant to Section 402 of Public Law 90-248, as
amended; and

WHEREAS, the Physician, in the course of his practice,
renders medical services to Medicare Part B beneficiaries; and

WHEREAS, the Physician is willing and able to parti-
cipate in the alternative reimbursement system on the terms and con-
ditions set forth below;

NOW, THEREFORE, the Fiscal Agent and the Physician
agree as follows:

1. The Physician agrees to accept assignment of Medi-

care Part B claims for all medical and other health services furnished by him to Medicare Part B beneficiaries during the term of this Agreement.

2. The Schedule of Charges attached as Annex A hereto (or as revised in accordance with Paragraph 3 of this Agreement) shall apply to all medical and other health services furnished by the Physician to Medicare Part B beneficiaries during the term of this Agreement. In submitting assigned claims, and in billing Medicare Part B beneficiaries who do not choose to assign their claims, the Physician shall accept the amounts set forth in the Schedule of Charges as his full charges for the respective services.

3. A review of the attached Schedule of Charges shall be conducted prior to _____, 19__, with a view to updating the said Schedule. Following such review, the Social Security Administration may revise the Schedule of Charges. The Fiscal Agent shall provide to the Physician a copy of the Schedule of Charges as so revised, which revised Schedule shall apply, in lieu of the Schedule attached as Annex A hereto, to all services rendered on or after the effective date specified in the said revised Schedule.

4. The Fiscal Agent shall pay to the Physician, on each assigned claim, the full amount of the scheduled charge for each

service covered by Medicare Part B benefits, without reduction for coinsurance or deductible amounts. The Physician shall assign to the Fiscal Agent his right to collect coinsurance and deductible amounts on each assigned claim.

5. The Physician shall submit assigned claims, and the Fiscal Agent shall process and pay assigned claims, in accordance with standard Medicare procedures, rules and regulations, except as otherwise provided in this Agreement. The Secretary of HEW may promulgate regulations concerning the present alternative reimbursement system, which regulations shall be applicable, according to their terms, to administration and implementation of this Agreement.

6. The Physician agrees to cooperate fully with the Fiscal Agent in the implementation of the alternative reimbursement system contemplated by this Agreement. In particular, the Physician agrees:

(a) to receive such information or instruction as the Fiscal Agent may provide to him and his staff concerning the purposes and operation of the alternative reimbursement system;

(b) to provide all information requested by the Fiscal Agent, by questionnaire or otherwise, concerning

the Physician's experience under the alternative reimbursement system;

(c) to utilize such special Medicare forms as may be issued by the Fiscal Agent in conjunction with the alternative reimbursement system;

(d) to make available to his patients such information concerning the alternative reimbursement system as may be provided for this purpose by the Fiscal Agent; and

(e) to comply with such other reasonable instructions or requests as the Fiscal Agent may make concerning the alternative reimbursement system.

7. The terms and conditions of this Agreement shall apply to all medical and other health services rendered by the Physician to Medicare Part B beneficiaries during the period beginning on the date of execution of this Agreement and ending on _____, 19___. Provided, however, that this Agreement may be terminated by mutual agreement of the Physician and the Fiscal Agent at any time, or by either the Physician or the Fiscal Agent by giving written termination notice to the other not less than 30 days before the effective date of termination.



IN WITNESS WHEREOF, the Fiscal Agent and the Physician have duly executed this Agreement this ____ day of _____, 1975.

[FISCAL AGENT]

[PHYSICIAN]

By _____



2.4 Expediting of Claims Processing and Bill Collecting

Claims processing and bill collecting will be expedited in the experiment by the preparation of claims by the doctor's staff, by modifying the forms currently in use to clearly indicate the beneficiary's liability, and by coordinating benefits of Medicare and complementary private insurance, whenever possible. In a national program, the goal would be to consolidate claims filing and coordinate claims processing in order to expedite payment to the doctor, minimize the cost of the carrier's operation, and simplify the administration of the program.

At present, the doctor who accepts assignment (as the volunteer doctors will agree to do) usually has his office staff assist the beneficiary in completing Part I of Form 1490, which details the beneficiary's identification information and assignment authorization. The doctor's office fills in Part II, which identifies the physician and describes the services rendered.^{1/} In addition, the doctor's staff prepares a private insurance form, with authorization for payment to the provider, thus ensuring that the doctor will be reimbursed from complementary insurance. Other patients, without private complementary insurance, are billed separately.

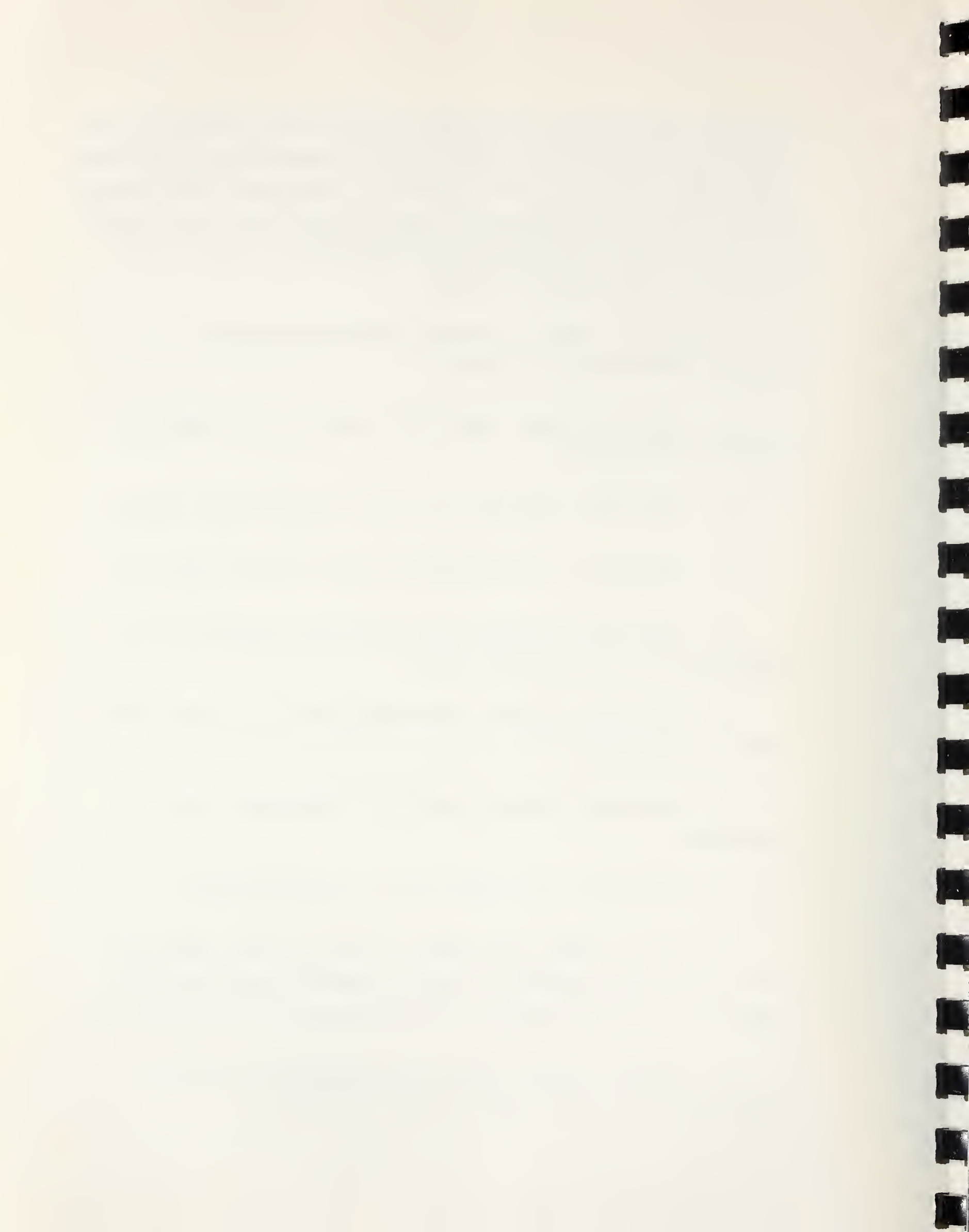
In the alternate system, the physician will be paid in full by the fiscal agent and the task of collecting the deductible and coinsurance will be shifted to the fiscal agent. Therefore, as part of the experiment agreement, all

^{1/} Physicians are permitted to attach a copy of a form used in their record-keeping instead of making entries on Form 1490 if it provides equivalent information.

volunteer physicians will agree to assist the beneficiary in filing his Medicare Form 1490 and his complementary insurance claim form. This will not represent a departure from present practice for most physicians, many of whom have signs posted in their office instructing their patients to fill out all insurance forms before leaving.

The fiscal agent's claims processing functions may be briefly summarized as follows:

1. Receive claims forms from physician for Medicare and private insurance.
2. Determine whether or not the services are covered.
3. Determine the reasonable charge for the services.
4. Determine whether the carrier has processed the services on the claim previously.
5. Determine whether the beneficiary is eligible for Part B of Medicare.
6. Determine whether the Part B deductible has been satisfied.
7. Calculate the payment due to the physician.
8. Send a check for payment in full to the physician for all allowed charges on claims received from him within a period of time along with an explanation of the remittance.
9. Forward claims forms to complementary insurance companies who are not cooperating in experiment.



10. Prepare and mail an Explanation of Medicare Benefits (EOMB), with or without a bill to the beneficiary, as appropriate.^{1/}

11. Forward EOMB and beneficiary's payment authorization to Blue Shield and other cooperating insurance companies along with private health insurance form, if required.

The key operating entity in the experiment is the fiscal agent. The administrative plan for the experiment assumes that RRNA will subcontract with Medical Service of D.C. (Blue Shield) for performance of the fiscal agent function. If such arrangements are made, the office of the fiscal agent will be established as an operating unit parallel to the 4 existing Medicare claims units that Blue Shield now has in operation. If other arrangements are made, a separate unit will be established within the selected organization.

Table 3 indicates the tasks performed by or in response to the fiscal agent. It also shows the Blue Shield Medicare actions that relate to the processing of Medicare Part B claims originating from the medical services performed by physicians in the control group. To distinguish experimental claims from others, the Form 1490 used by doctors in the experimental group will be on yellow paper.

The chain of operations involved in processing fiscal agent representative payee (FARP) claims, described in the middle column of table 3, is a necessary experimental action, and one required to maintain the integrity of the Social

1/ Adapted from Report to the Secretary of HEW and Commissioner of Social Security by the Advisory Committee on Medicare Administration, Contracting and Subcontracting, June 21, 1974.

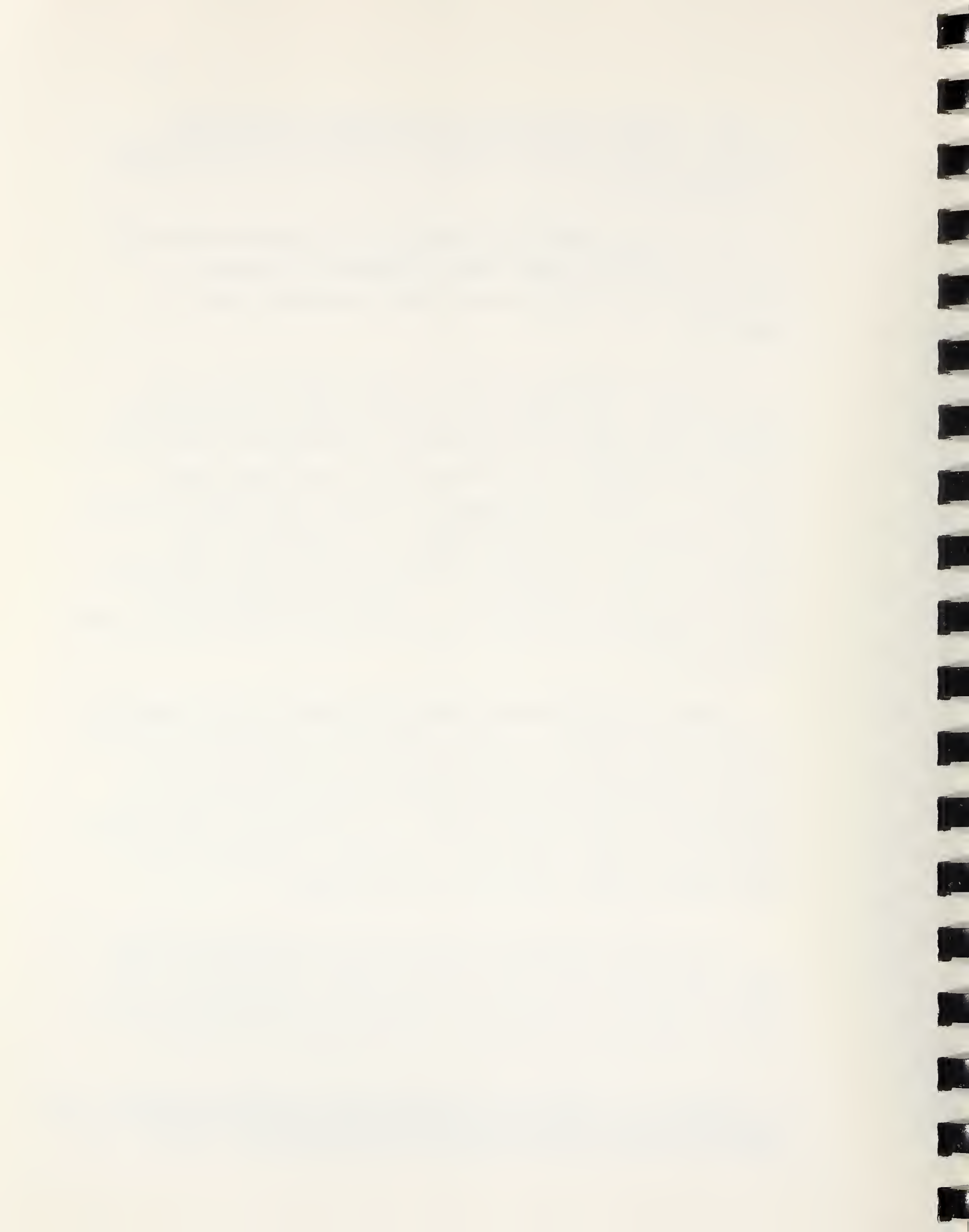


Table 3. Operational Role of Fiscal Agent (FA) and Interface with Blue Shield (B/S) Medicare Operations

Fiscal Agent actions for Experimental Group Claims	B/S Medicare actions for control group claims
	Forms SSA-1490 received from B/S mailroom, date stamped, and sorted; color coded 1499's sent to Fiscal Agent
FA unit receives experimental group 1490's	Control group 1490's are sent to Medicare units (4)
After preliminary screening, claims examiner assigns 9-digit control numbers (5th and 6th digits identify the claim as a F/A unit responsibility)	After preliminary screening claims examiner assigns 9-digit control numbers (5th and 6th digits identify unit responsible for the claims)
Claims examiner reviews 1490's for completeness and coding as F/A representative-payee (FARP) claims; separates "clean" claims and completes coding on others; identifies QUAD cases	Claims examiner reviews 1490's for completeness and coding; separates "clean" claims and completes coding on others; identifies QUAD cases
Claims examiner enters FARP claims into computerized system at terminal; completes on-line editing against beneficiary extract file	Claims examiner enters claims into computerized system at terminal; completes on-line editing against beneficiary extract file
Claims examiner prepares F/A's action copies of 1490; reviews them for completeness and conformity with experimental reimbursement system	Computer edits claims for:
(1)completeness, consistency, and accuracy	(1)completeness, consistency, and accuracy
Claims examiner resolves discrepancies in experimental claims (manual operation)	(2)reasonableness of charges
(3)pricing	(3)pricing

Claims examiner reviews and, if necessary completes coding of experimental claims	(4)history (name, address, sex, entitlement, deductible status, duplicate billing, utilization review, etc.)	(4)history (name, address, sex, entitlement, deductible status, duplicate billing, utilization review, etc.)
	Computer generates exception report, if appropriate	Computer generates exception report, if appropriate
	Computer queries SSA re deductible and entitlement, if necessary	Computer queries SSA re deductible and entitlement, if necessary
	Computer generates exception report, if appropriate	Computer generates exception report, if appropriate
Claims examiner reviews exception reports for complications, if any, on experimental claims reimbursements	Claims examiner resolves discrepancies on FARP claims	Claims examiner resolves discrepancies
	Computer calculates FARP reimbursement payments	Computer calculates reimbursement payments
Claims examiner enters clean experimental claims into special computer program	Computer credits providers' accounts (with F/A as representative payee)	Computer prints checks to beneficiaries and credits payments to providers accounts
Special computer program calculates participating physicians' reimbursement payments	Computer prints remittance notices for FARP claims (a record of payments made to the F/A)	Computer prepares check register
		Computer prints explanations of actions taken on claims (EOMB)
Special computer program credits authorized experimental reimbursement payments to the participating physicians' accounts and charges these to the F/A's account	Computer collects and summarizes payments on all FARP claims and prepares transfer vouchers for weekly transmittal to the F/A	Computer collects and summarizes periodic payments to providers; and prepares checks for providers
		Claim and/or EOMB are transferred to D.C. Blue Shield/Medicaid, if appropriate
Special computer program prepares register of F/A's payments to participating physicians		
Special computer program collects, summarizes payments to participating physicians; and prepares checks		

Special computer program
prepares requests for
deductible and/or co-
insurance payments
addressed to beneficiaries
(or private insurance com-
panies on assigned claims);
transfers Medicare claims
to Medicaid

Claims examiner receives
and clears deductible and
coinsurance "payments"
from beneficiaries pri-
vate insurance companies/
Medicaid

- (1) enters payments on
F/A's action copy of
1490;
- (2) enters payments in
special computer
program; and
- (3) deposits payments to
F/A's account

Special computer program
edits the beneficiaries'
accounts re services under
experimental program and
prepares explanations of
actions taken (EOMB) for
beneficiaries.

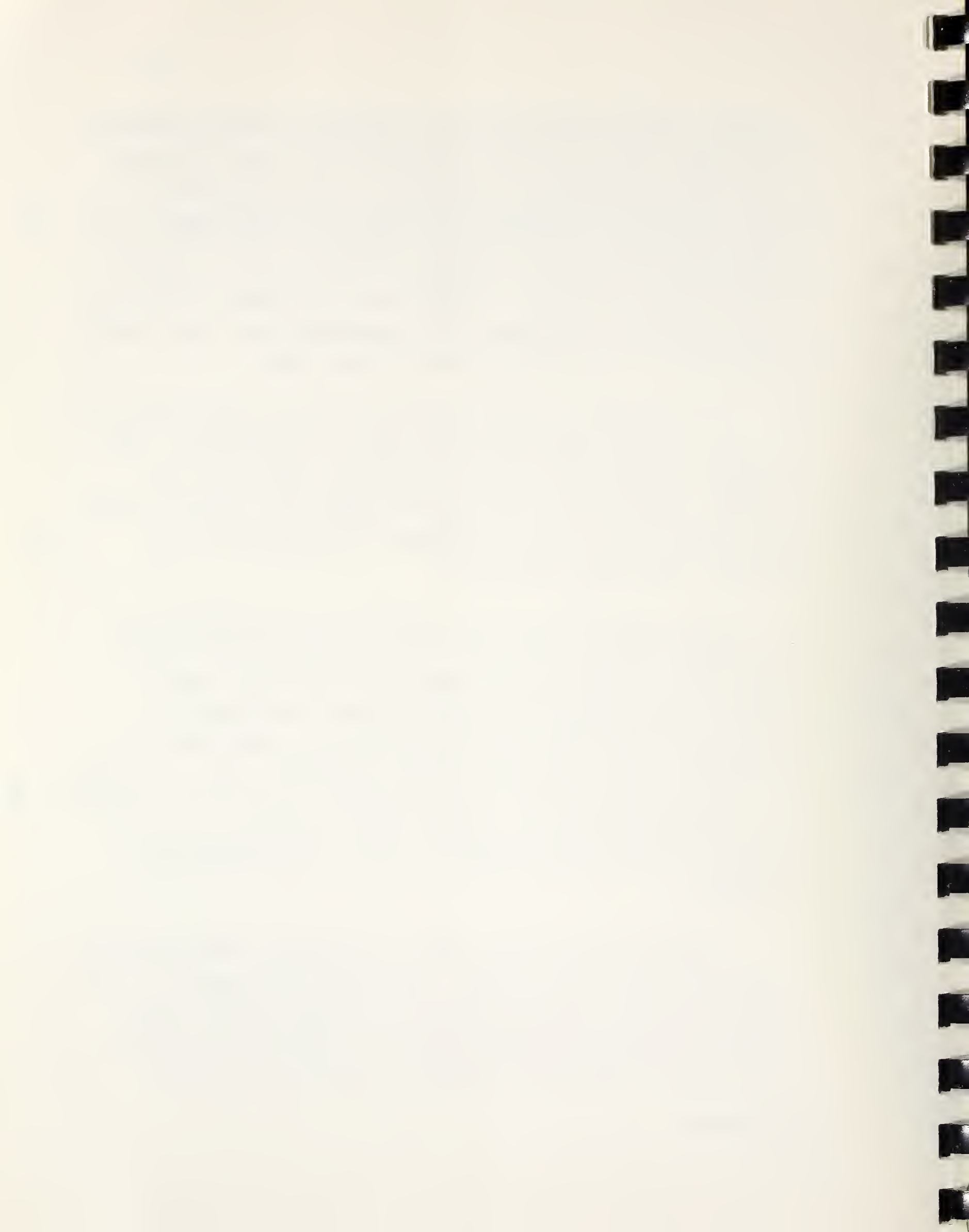
Security Administration's health insurance program accounts. The fiscal agent will be reimbursed by the Part B carrier for claims submitted by physicians of the experimental group, based on the existing Medicare CPR regulations. This chain of operations will not be performed if the alternate reimbursement system is adopted as the standard national Medicare Part B system. In that case, the chain of actions in the table's left column will approximate the "real world" operations of the system at some future time. *

Cost savings in claims processing can be anticipated as a result of the 100-percent acceptance of assignment. The Perkins report found that "an assignment rate that is 1 percent higher than average can be expected to lead to costs per claim that are roughly between 0.2 percent and 0.3 percent lower than average."^{1/} *

Additional savings would result from a consolidation of claims. Many doctors now file a Form 1490 after each visit of the beneficiary, despite the fact that return visits are scheduled in the near future. One doctor consultant suggested that doctors could be persuaded to consolidate their claims -- weekly, monthly or even quarterly -- if they appreciated the cost savings that would be effected and recognized that they could benefit from such savings because of their participation in the fee determination process. *

Further savings might occur if incorrect identification information were eliminated. Approximately 8 percent of all Medicare claims contain errors in the beneficiary's name, address, or health insurance number. Such errors increase the number of steps in processing, resulting in costly

1/ Ibid.

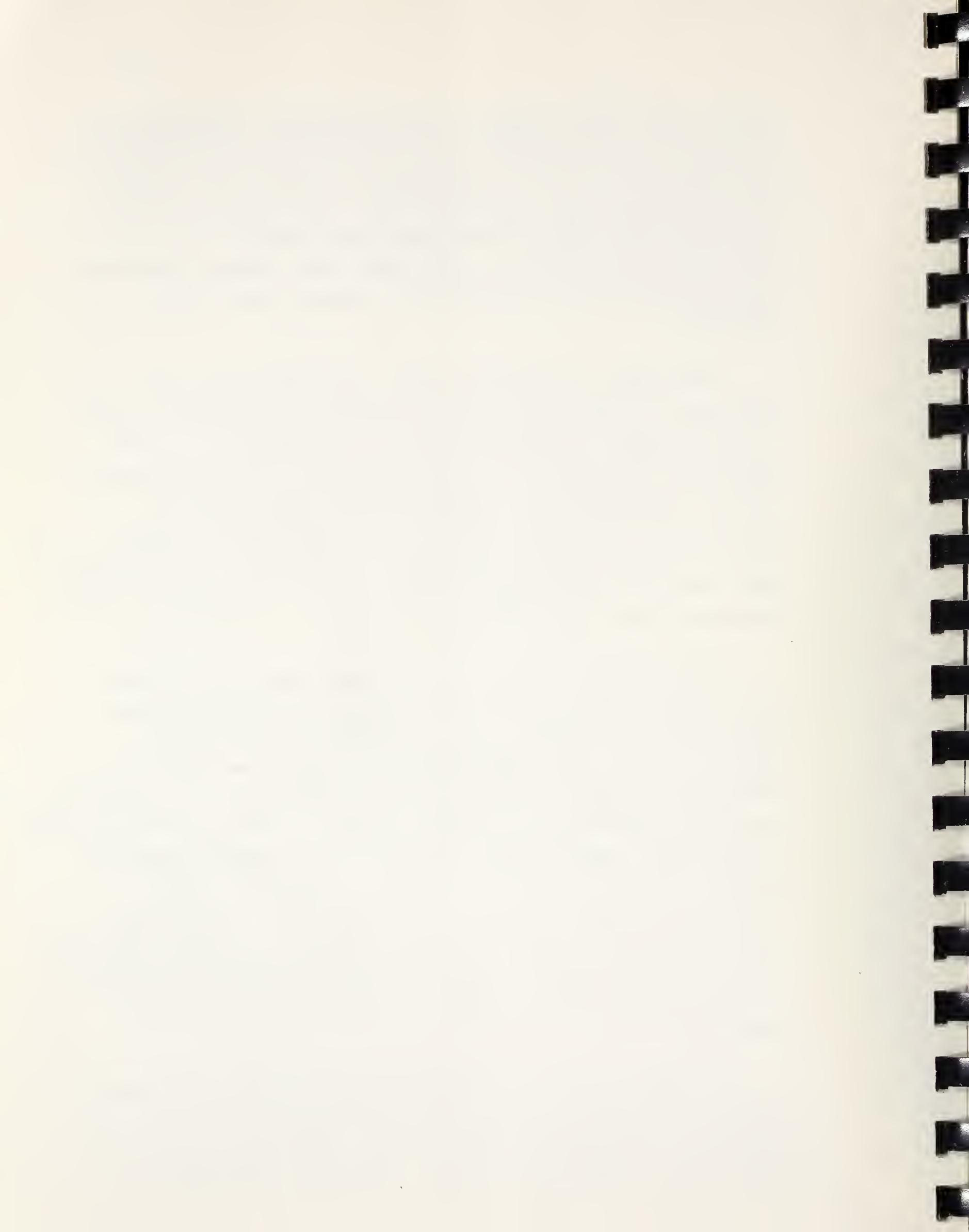


queries and delay payments. For this reason, consideration was given to a simplified billing system that incorporated an abbreviated claim form, an imprinting machine and a plastic identification card. Unfortunately, the reaction to the proposed simplified billing system was negative. Most of the objections centered on the short form. Some respondents reacted favorably to the idea of a plastic card and an imprinter.

We propose therefore to query volunteer physicians to determine if there is sufficient interest to warrant a test of this element of the design and to implement it, if the response is favorable, in the second year of the experiment. Prior to implementation, beneficiaries would receive a plastic card, and Form 1490 would be redesigned to permit use of the card with an imprinter to record (1) the physician's name, address and provider number, and (2) the patient's name, Medicare number, sex, and year of birth.

Since doctors, upon filing claims forms, will be paid the allowed charges in full for covered services rendered Medicare beneficiaries, it is incumbent upon the fiscal agent to collect the deductible and coinsurance from the beneficiary, either directly from the individual or indirectly from his complementary insurance company. For most beneficiaries in the area, complementary coverage is with Medical Service of D.C. and the transfer of claims is automatic. This procedure will be followed in the experiment. No separate claim form for Blue Shield need be prepared. For the remaining beneficiaries, it may be possible to make special arrangements for the fiscal agent to collect from the other commercial carriers.

We inquired about the claims filing procedure of several private insurance companies and learned of the industry-wide practice of coordinating benefits for individuals covered by more than one insurance policy. Under the arrangements for



coordinating benefits, the payments made by 2 or more companies to the same individual for a benefit covered by more than one policy does not exceed the total of the allowable expenses. The right to release necessary information and right to recover excess amounts of payment are elements of the coordination of benefits provisions. Another relevant aspect is found in the contract provision, entitled "Facility of Payment," that stipulates that "whenever payments which should have been made under this Plan [i.e., policy]...have been made under any other Plan, the Insurance Company will have the right... to pay over to any organizations making such other payments any amounts it shall determine to be warranted."^{1/} We believe we have the framework in these prevailing practices in the private insurance sector on which integration of claims processing might be developed, and we propose to test the idea during the experiment.

To implement this concept, an authorization from the beneficiary to his complementary insurance company to pay the fiscal agent would be necessary. A sample of a possible authorization form appears at the end of this section.

It is unlikely that the private insurance companies will cooperate in the experiment if it involves additional work or out-of-pocket expenses for them. The number of a company's subscribers who might be served by the volunteer physicians may be small. The fact that the effective time of the experiment is limited to 2 years may make it uneconomical to introduce major changes in procedures. However, the receipt of properly filled-out claims forms and an

^{1/} Aetna Life Insurance Company, Group Insurance Certificate, 1973, p. 3007-2.

explanation of Medicare benefits may reduce their processing costs. Also, the significance of this experiment for a future national health insurance program may be an overriding consideration. How willingly and how much the private insurance companies will cooperate in the experiment remains to be seen.

Since the fiscal agent must collect the deductible and coinsurance and will arrange to the greatest extent possible to collect from third-party insurers, he must be familiar with the various commercial policies sold and must keep records of his transactions with the insurance companies. For the fiscal agent, the additional bookkeeping costs might offset the putative savings. In any case, beneficiaries must be billed and informed of the amount they owe the fiscal agent for the amount of the deductible and coinsurance they owe, and they must be told that a claim had been or has not been filed with a private insurance company.

The bill-collecting functions may be summarized as follows:

1. Mail bill or statement (EOMB) to the beneficiary, explaining the Medicare benefits and the beneficiary's liability and requesting reimbursement of the deductible and coinsurance to the fiscal agent, if the beneficiary has no complementary private insurance or if arrangements for reimbursement to the fiscal agent have not been made into the private insurance company.

2. Submit a claim for reimbursement from a private insurance company, if the beneficiary has signed an authorization form and cooperative arrangements have been made.

3. Mail follow-up statements periodically as long as the beneficiary is listed among the accounts receivable.



4. Mail a final statement when the claim is fully paid. *

The modified EOMB, indicating the beneficiary's liability and the status of the doctor's claim, would have two formats: (1) a bill requesting payment from the beneficiary; and (2) a statement, not a bill, indicating the beneficiary's liability and the request for payment from or transfer of the claim to the complementary insurer. (Sample forms appear at the end of this section.) The following items, some of which appear on the present form; would be reported:

- . Amount billed
- . Amount approved
- . Amount applied toward deductible
- . Balance [(3) minus (2)]
- . Medicare liability [80 percent of (4)]
- . Beneficiary liability:
 - Remainder of deductible
 - Coinsurance [20 percent of (4)]
- . Amount Medicare paid to doctor
- . Amount owed by beneficiary
- . Notification of transfer of claim form to private insurance company or Medicaid
- . Notification of whether beneficiary's liability's to be paid by him or by private insurance company
- . A request that the beneficiary enclose his payment in the self-addressed envelope that would be enclosed.

The follow-up statement of account would indicate claim number, date of billing, name and address of beneficiary, telephone number to be used if there are any questions about the statement and would show the balance on account.

Physician's office: Fillin

Physic

operating
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Medicaid

aff and beneficiary
aim form of non-
insurance company

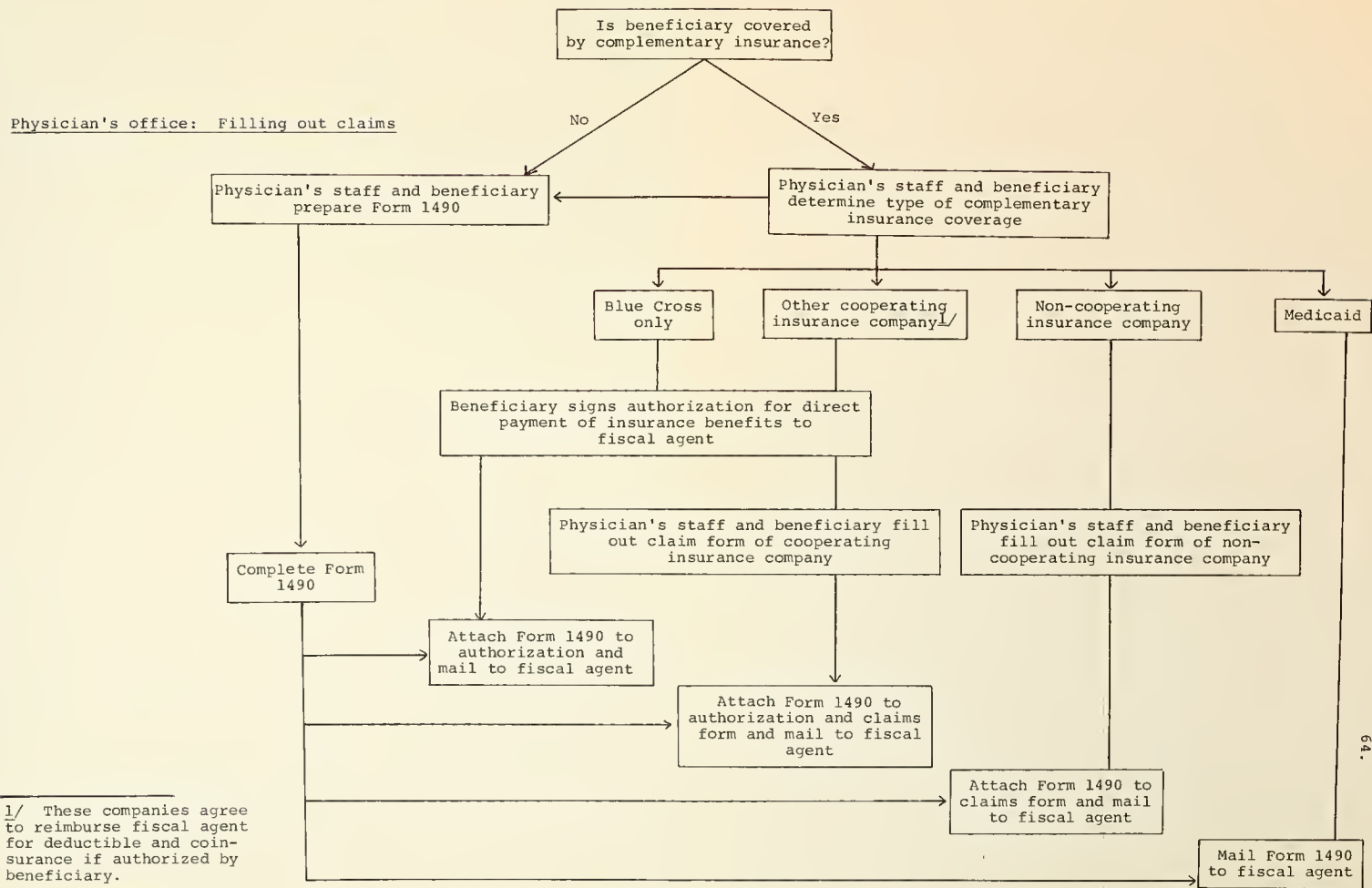
Comp

90 to
mail
ent

Mail Form 1490
to fiscal agent

1/ These companies agree
to reimburse fiscal agent
for deductible and coin-
surance if authorized by
beneficiary.

Figure 2. Flow Diagram of Claims Processing and Bill Collection



Fiscal agent: Fee determina

No competing
in company

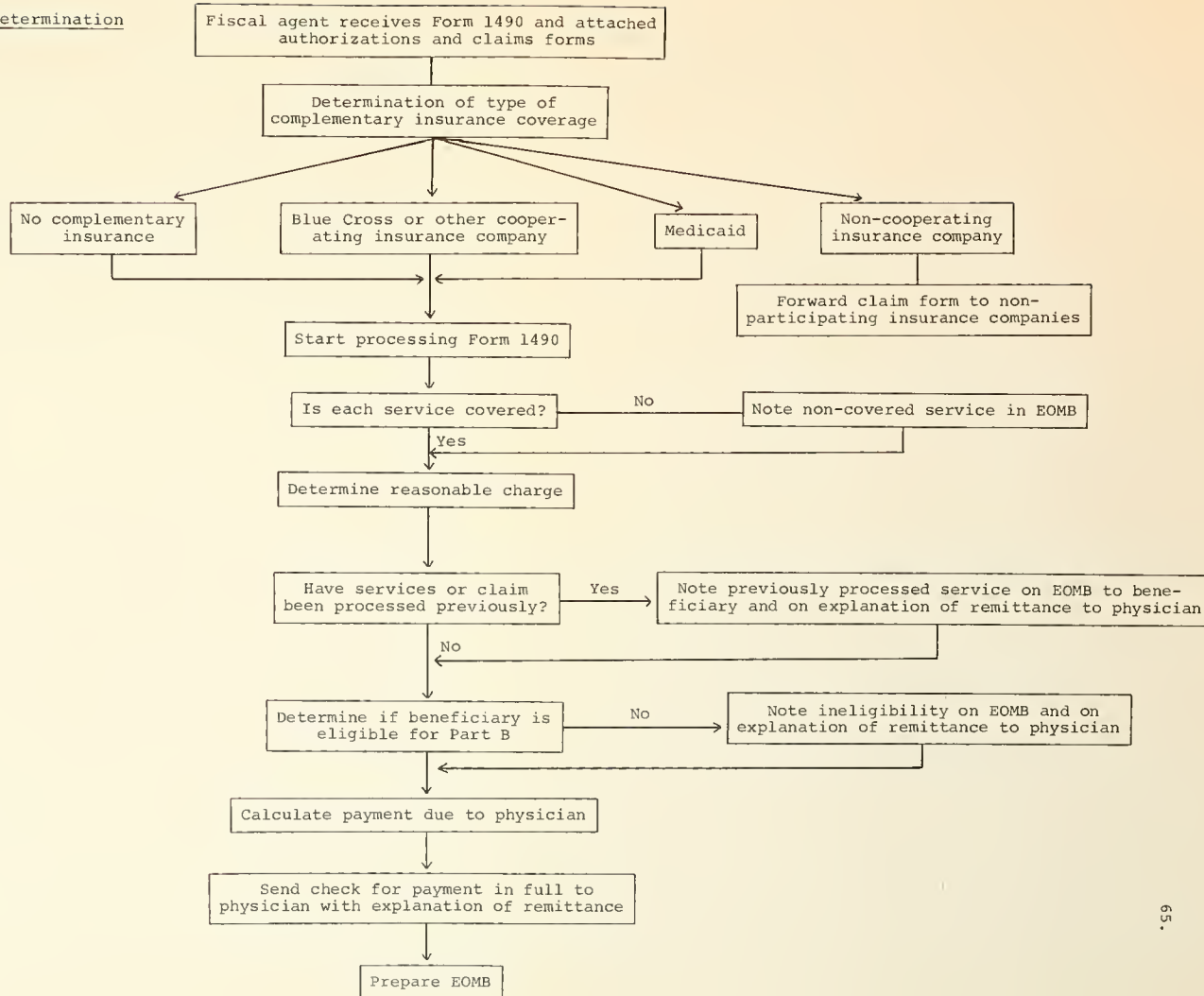
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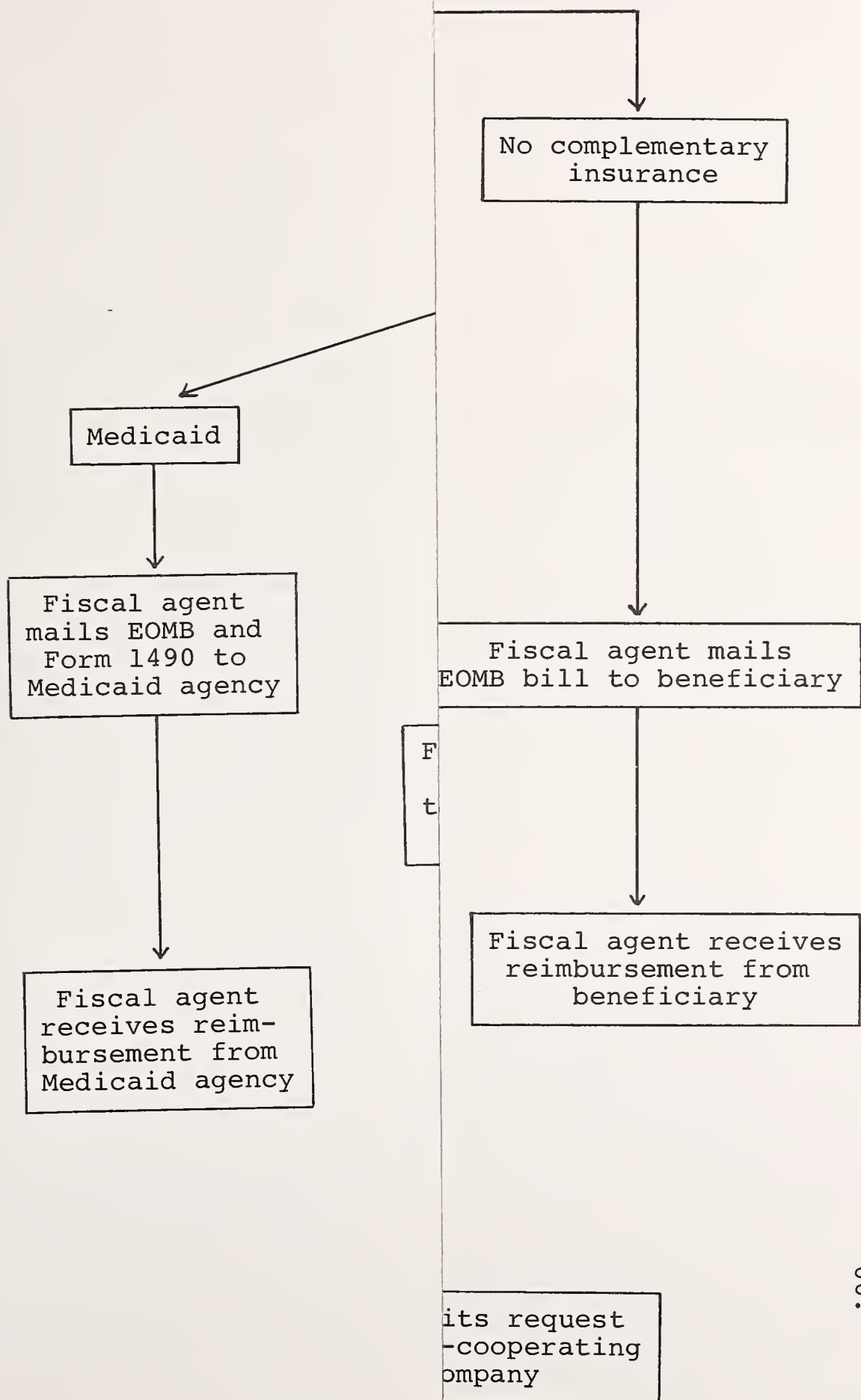
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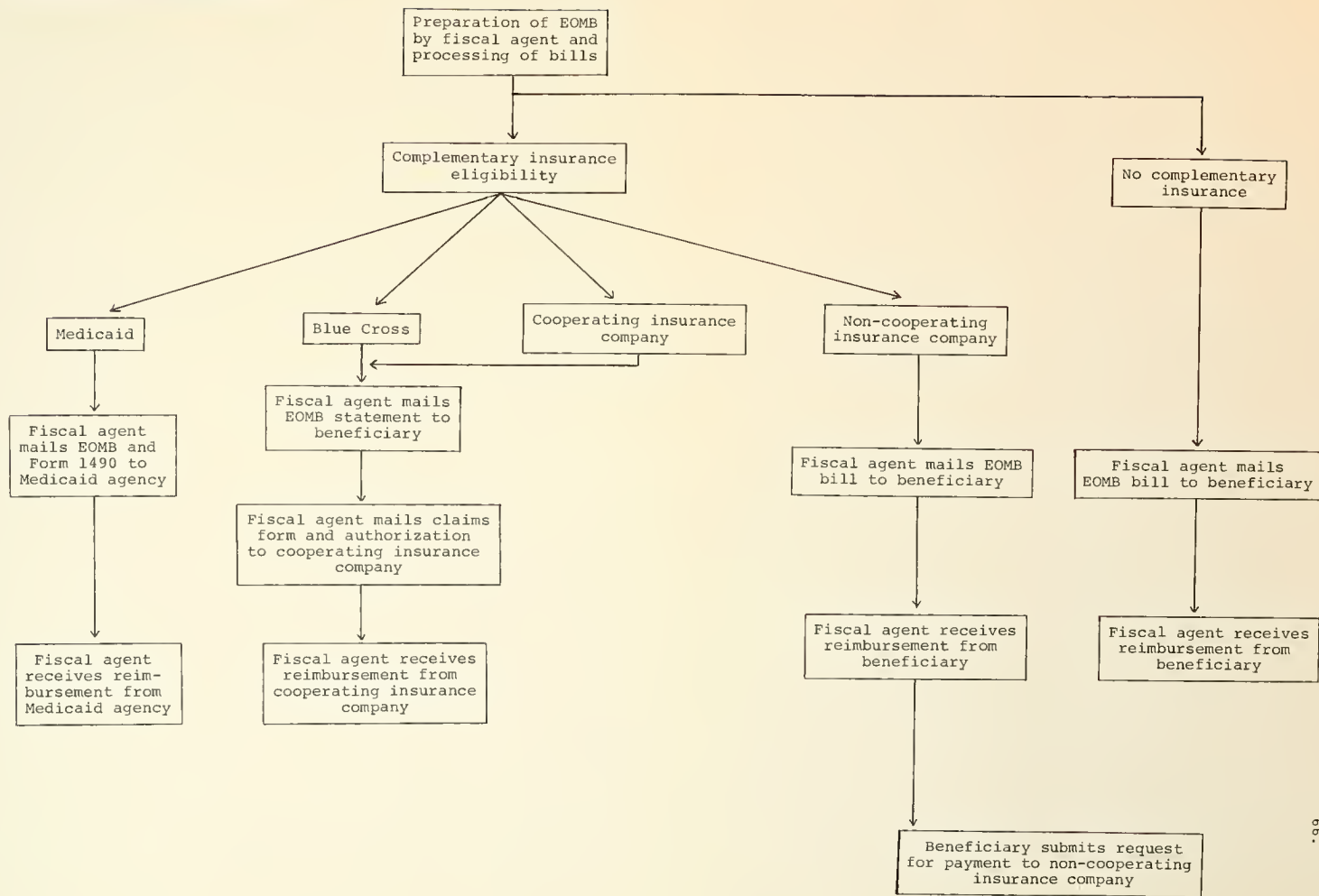
Fiscal agent: Fee determination



Fiscal agent: Bill collecti



Fiscal agent: Bill collection





EXAMPLE

AUTHORIZATION FOR PAYMENT OF COMPLEMENTARY
HEALTH INSURANCE TO FISCAL AGENT

I hereby authorize _____ [Insurance Company Name] , of _____, being my Insurer under Policy Number _____, to pay _____ [Fiscal Agent] on my behalf, out of any moneys due to me from the Insurer as a result of my receiving medical and other health services from Dr. _____ on _____ [Date], an amount necessary to satisfy the Medicare Part B deductible and coinsurance owed by me for the aforesaid services. Any and all other moneys due to me under the Insurance Policy shall be paid directly to me by the Insurer in accordance with the terms thereof.

Fisal Agent agrees to submit to the Insurer an accurate statement of the amount of the deductible and coinsurance owed by me for the aforesaid services, to apply any moneys it receives from the Insurer to the payment of the deductible and coinsurance due, and to provide me a written receipt acknowledging such payment.

Signature of Insured

SSA Claim Number

Agreed and accepted:

[Fiscal Agent]

EXAMPLES OF EXPLANATION OF MEDICARE BENEFITS FORMS

1. One EOMB will have a "This Is A Bill" stamped on its face. A tear-off section on the bottom will show:

YOU OWE →

A claim for private health
insurance

Beneficiary name and address

has ☐ has not ☐ been filed

Please enclose this portion
of your bill with your re-
mittance in the enclosed
self-addressed envelope

HI number
Co. number

REQUEST FOR PAYMENT

2. The EOMB that is not a bill will have that noted on its face and at the bottom, a section will read as follows:

YOU OWE →

A claim and request for pay-
ment has been made to your
private insurance company.
If you have any questions,
telephone _____.

Beneficiary name and address

HI number
Co. number

THIS IS NOT A BILL

Office of the Medicare Fiscal Agent
Washington, D.C.

REQUEST FOR PAYMENT

BILLING DATE	BALANCE DUE
HIC ACCT NO.	CONTROL NO.

Detach and return with your remittance.
Use enclosed self-addressed envelope.

AMOUNT ENCLOSED \$ _____

KEEP THE FOLLOWING STATEMENT FOR YOUR RECORDS

BILLING DATE	HIC ACCT. NUMBER	PREVIOUS BALANCE	PAYMENTS/ CREDITS	ADJUSTMENTS AMOUNT CODE	BALANCE DUE

THIS BILLING REPRESENTS YOUR SHARE OF THE FOLLOWING CHARGES:
(See explanations on back of this sheet)

DATE (MO-DAY)	PHYSICIAN NAME AND NUMBER	TOS CODE	ALLOWABLE CHARGES	MEDICARE WILL PAY	DUE FOR DEDUCTIBLE	DUE FOR COINSURANCE

The balance due on your account upon presentation of this statement is \$ _____

A request for payment has been forwarded to your insurance company. ☐ Yes

☐ No

If you questions about this bill, call _____.

OFFICE OF THE MEDICARE FISCAL AGENT
Washington, D.C.

2.5 Incentives to Ambulatory Care

Incentives to ambulatory care will be built into the system by means of adjustments in the relative value scale or in the formula by which fees are determined. For example, doctors will be reimbursed for preparing a home health care plan in order to provide incentives to utilize the broad range of home health services covered by Medicare, thus reducing hospital admissions and lengths of stay.

Really significant savings could be achieved in the Medicare program if more effort were exerted to bring about greater use of home health services. Consider these facts: A day of hospital care in the Washington metropolitan area currently costs nearly \$200. In the 2 counties in which the study is to take place, there are approximately 60,000 Medicare beneficiaries. If one reduced their use of hospitalization by even a quarter of a day per capita (i.e., \$50) a savings of \$3 million would result.

In the Kaiser experiment in Portland, Oregon, a full-scale effort was made to use a team of home health personnel (nurses, therapists, homemakers, etc.) to provide services that made hospitalization unnecessary or that made earlier discharges from the hospital possible. The study found they had 62 home care visits per 100 Medicare beneficiaries per year (0.62 per capita).^{1/} Hospital days per 100 were reduced even below the already low figure of the Kaiser plan; the rate had been at about half the level of the Oregon Medicare patients not belonging to Kaiser.

^{1/} Arnold V. Hurtado, M.D., Integration of Home Health and Extended Care Facility Service into a Prepaid, Comprehensive Group Practice Plan, National Center for Health Services Research and Development, HEW, October 1970.

Home health care by a visiting professional nurse or therapist averages between \$20 and \$25 a visit. If we use the mid-point, \$22.50, as a cost figure, and apply the cost to the Kaiser utilization, the results for the 2 Maryland counties are as follows:

$$0.62 \times \$22.50 \times 60,000 = \$837,000$$

Such an expenditure -- equal to \$14.00 per capita per year -- would be a maximum or upper limit, since it assumes a full-scale complete operation from the first day and pay at the top salary for all home health care personnel. The theoretical savings, \$2,160,000 in just 2 counties -- the difference between \$3 million and \$840,000 -- if replicated throughout the country, could save billions of dollars. Under the present Medicare program no incentives exist to motivate doctors to order home health care regimens for Medicare patients. In the entire Washington metropolitan area, only 8,575 home health care claims were processed in 1974; for these, \$968,975 was paid.

With the implementation of PSRO activity, the time may be especially propitious for proposing home health care as an alternative to hospitalization. If lengths of stay are controlled more stringently, doctors may find that they are increasingly involved with the problems of post-hospital patient care. As a result, the suggestions that they use discharge planning in the hospital, rely on their office nurse for patient care coordination, and use home health services, may fall on receptive ears.

Under the present system:

Medicare's medical insurance can help pay for up to 100 home health visits in a calendar year.... But medical insurance can pay for the visits only if four conditions are met. All four conditions must be met. These conditions are: (1) you need

part-time skilled nursing care or physical or speech therapy, (2) a doctor determines you need the services and sets up a plan for home health care, (3) you are confined to your home, and (4) the home health agency providing services is participant in Medicare.^{1/}

Medicare's hospital insurance also requires that a doctor set up a home health care plan after a patient's discharge from hospital or skilled nursing facility. If the home health care plan is properly designed, it involves time, effort and specialized knowledge on the part of the physician. In addition, he can expect to be consulted by the home health agency implementing the plan.

We plan, therefore, to add a new procedure to the existing relative value scale, to be described as "Preparation of a Home Health Care Plan," or alternatively, to define one of the new procedures in the latest revision of the D.C. RVS to include the preparation of a home health care plan. The fee the physician will collect for preparing this plan should be sufficient to compensate him for his time or the time of his nurse in preparing the plan, working with the discharge planner in the hospital and answering inquiries for the home health agency about the patient, his medical status and care requirements. A model form for a home health care plan appears at the end of this section.

In addition, we would enter into a contract with the Visiting Nurse's Association (VNA) of the Washington metropolitan area, a nonprofit, Medicare-certified home health care agency, to develop an educational program to explain to physicians and their office personnel how home health care services can be called into play to benefit

^{1/} USHEW, SSA, Your Medicare Handbook, DHEW Publication No. (SSA) 74-100050, p. 37.

patients. There seems to be general agreement that the underuse of these services is attributable in part to a lack of awareness on the part of physicians as to home health care's potential under the Medicare program and available community resources.

The scope of the home health services that would be demonstrated in the educational materials to be developed would not be limited to the statutory benefits allowed under Part A or Part B of Medicare. In addition to the covered benefits (part-time nursing care; physical, occupational and speech therapy; part-time services of home health aides; etc.), services not funded by Medicare would also be included, with emphasis on the fact that the home health care agency could provide them with payment from the patient or some other financial source in the community. For example, in Arlington County, Virginia, under the auspices of the VNA, a program of "Meals on Wheels" is operated and is not covered by Medicare. For \$10 a week, the homebound person receives a hot meal and a cold supper snack 5 days a week. The food is prepared at one of the local hospitals and distributed between noon and 1:00 p.m. by volunteers.

An experiment with expanded coverage of home health care in an effort to reduce hospitalization is now being conducted in Massachusetts. We asked the Massachusetts Blue Shield research director for any information and data they had used to justify the program initially and what their experiences had been with it. He responded:

The concept was accepted on an intuitive basis by our management. When one is faced with average daily costs in excess of \$100 for inpatient hospital care as opposed to less costly home health care, the savings for a particular patient are rather obvious. But if one simply assumes that the full amount of the difference between inpatient costs and home health costs are ultimately saved

for those cases where home health care is substituted, I submit that the amount of savings is overstated. In substituting home health care, inpatients beds are made available for other patients. Since most hospitals depend on their revenue, for the most part, by maintaining a high inpatient occupancy rate, the free-up beds will most likely be filled. Therefore, the situation exists where the costs of the inpatient bed must still be met, and in addition, payments are being made for home health care. The answer to this dilemma is simply stated but not easily accomplished. It is necessary to close down the proportion of hospital beds that will no longer be needed if a true substitution of home health care is envisioned. Only then will the full savings be realized.

This same dilemma occurs when any type of expanded outpatient care is provided when it is considered to be a substitute for inpatient care."1/

The alternate reimbursement system will test whether physicians will adjust their mode of practice in response to monetary incentives. However, their response will be conditioned by the fact that the experiment is of 2 years' duration, and they may feel that some changes would not be economically justified in that period of time. For example, certain surgical procedures can be performed on an inpatient or outpatient basis. The reimbursement formula could be weighted in favor of outpatient services for those procedures. If, however, special office space and equipment would have to be acquired, doctors may think that the reimbursement differential over a 2-year period would be insufficient but would be sufficient for a longer period of time.

1/ Letter from T. M. Harrington, Jr., Director of Research and Development, Blue Cross/Blue Shield of Massachusetts, dated August 27, 1975.

PLAN OF TREATMENT FOR HOME HEALTH SERVICE

Date _____

Unit No. _____

Family-Pt. No. _____

Patient: _____ H. I. Claim No. _____

Address: _____

Diagnoses & Functional Limitations:

Relevant History:

Prognosis:

Type & Frequency of Nursing Services:

Drugs & Medications:

Special Diet:

Activities Permitted:

Supplies & Appliances:

Other Services (physical, speech, occupational therapy, medical social service):

Goals:

_____ Services for this patient are requested to treat conditions reasonably related to those for which he or she has received service while in a hospital or extended care facility.

Patient is essentially homebound? Yes _____ No _____

Signature of Physician _____

Estimated Time
Services Needed _____

Address: _____

Date _____

Source: Prepared by Visiting Nurse Association of Washington.



2.6 The Information Program

An information program is an important component of the alternate reimbursement system and is designed to achieve several objectives: to solicit volunteer physicians; to explain the system to participants -- doctors, beneficiaries, and office staff; to encourage economies and efficiencies in the delivery of health services; and to provide a line of communication among the participants.

The information program will include personal contacts, printed materials and other means of communication. A number of professional relations representatives, functioning as detail men, will regularly visit physicians' offices to explain the functioning of the system, identify problem areas and follow through on grievances and errors. Each volunteer physician will have a personal representative assigned to him with whom he may communicate by phone.

The professional relations function for the experiment will be performed by the staff of RRNA in cooperation with the fiscal agent. At the start of the doctor-recruitment effort, every staff member would be involved in professional relations activity, seeking by attendance at meetings and visits to doctors' offices to persuade physicians to volunteer. The marketing effort would be directed first at leaders in the medical community, such as those physicians who are society officers or board members. In addition to personal contacts, a series of letters will be sent to all doctors in the county, beginning with a formal announcement of the experiment by the Social Security Administration, followed by a letter from RRNA indicating that a telephone communication will be received in a short while. The telephone

campaign will identify doctors who are very interested, on the fence, or actively opposed. Based on this information we will schedule visits to the doctor's office to persuade him to volunteer for the experiment. Care will be taken so that the correspondence does not have the look of bulk mailings or drug company advertising that are automatically discarded after a mere glance.

After the initial drive is completed, 2 persons will continue to function as professional relations representatives, one assigned to Prince George's County, the second to Montgomery County. The professional relations staff will handle problems as they arise in order to ensure the viability of the experiment. Problems of claims processing and basic questions of reimbursement policy will be communicated to the experiment's administrators via the professional relations representatives, who will have contacts with office staff as well as physicians.

Brochures will be prepared for the physician, his office staff and the beneficiary. The brochures will have an attractive format, with artistic layout, using graphic illustrations and color to assist the reader in understanding how the system functions. Examples of the texts for such brochures follow this section.

Brochure 1. For the Beneficiary

OUR NEW BILLING SYSTEM:

An Information Sheet for Medicare Beneficiaries

Your physician is cooperating with the Social Security Administration in a simplified way of handling billing for medical services. He will help you file your claim with Medicare and with your private insurance company. Under this arrangement, the doctor's bill for services covered under the Social Security Act (Medicare Part B) will be sent directly to [Fiscal Agent]. [Fiscal Agent] is the Medicare fiscal agent for this area.

The fiscal agent will examine the bill to see what part of the physician's charges can be paid by Medicare. He will also calculate that part of the charges you must pay.

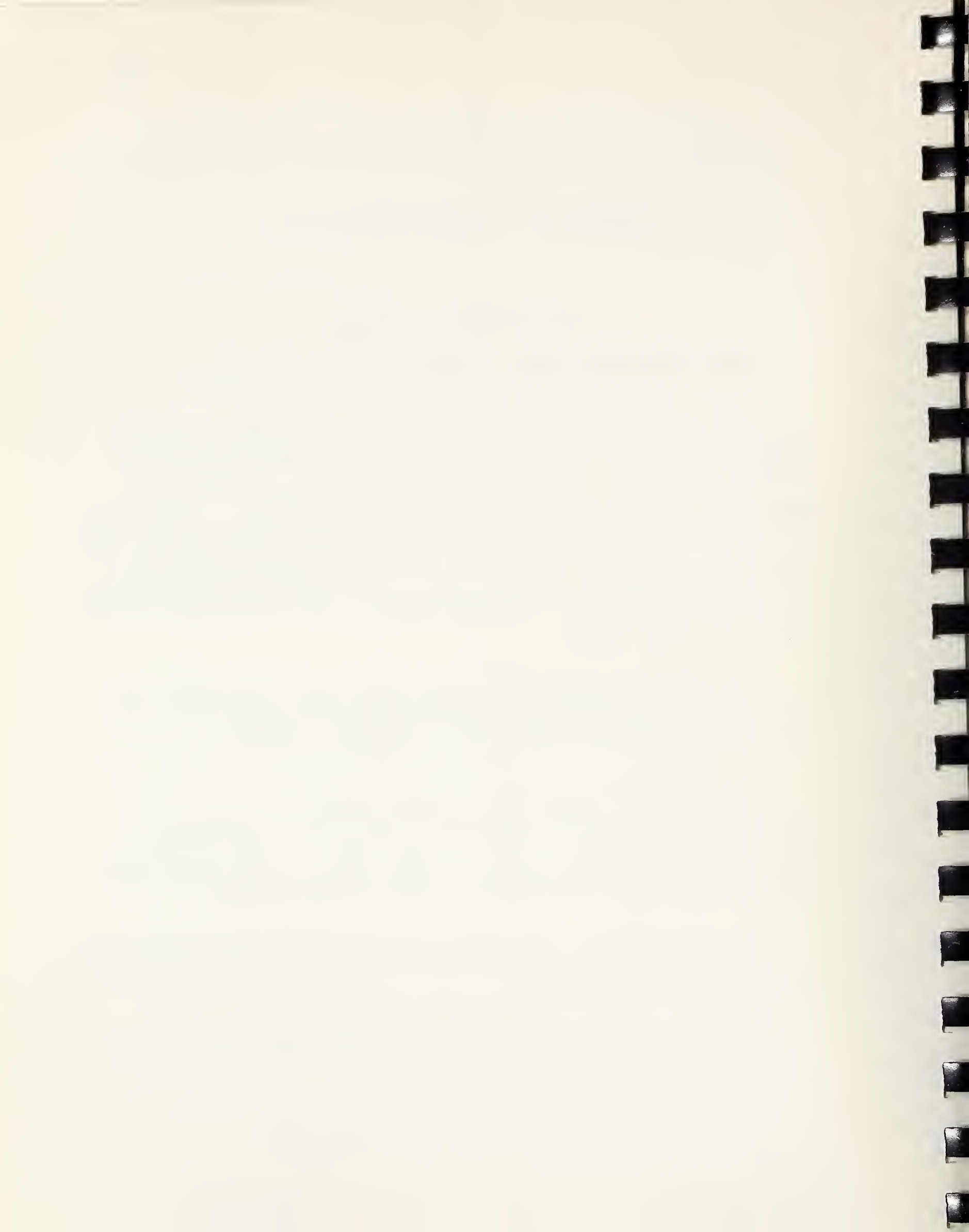
Like all Medicare Part B beneficiaries, the patient under this arrangement must pay the first \$60 of charges for covered services in each calendar year. After that the patient pays only 20 percent of the allowed charges.

[Fiscal Agent] will send you an Explanation of Medicare Benefits, telling you:

1. How much Medicare has paid to the physician for his services to you.

2. How much of the doctor's bill you owe.

(Continued)



3. Whether a claims form has been sent to your private insurance company.

4. How much you should pay [The Fiscal Agent] using the enclosed self-addressed envelope.

Brochure 2. For the Physician's Office Staff

WE'RE FINALLY MAKING CHANGES
IN THE RIGHT DIRECTION!

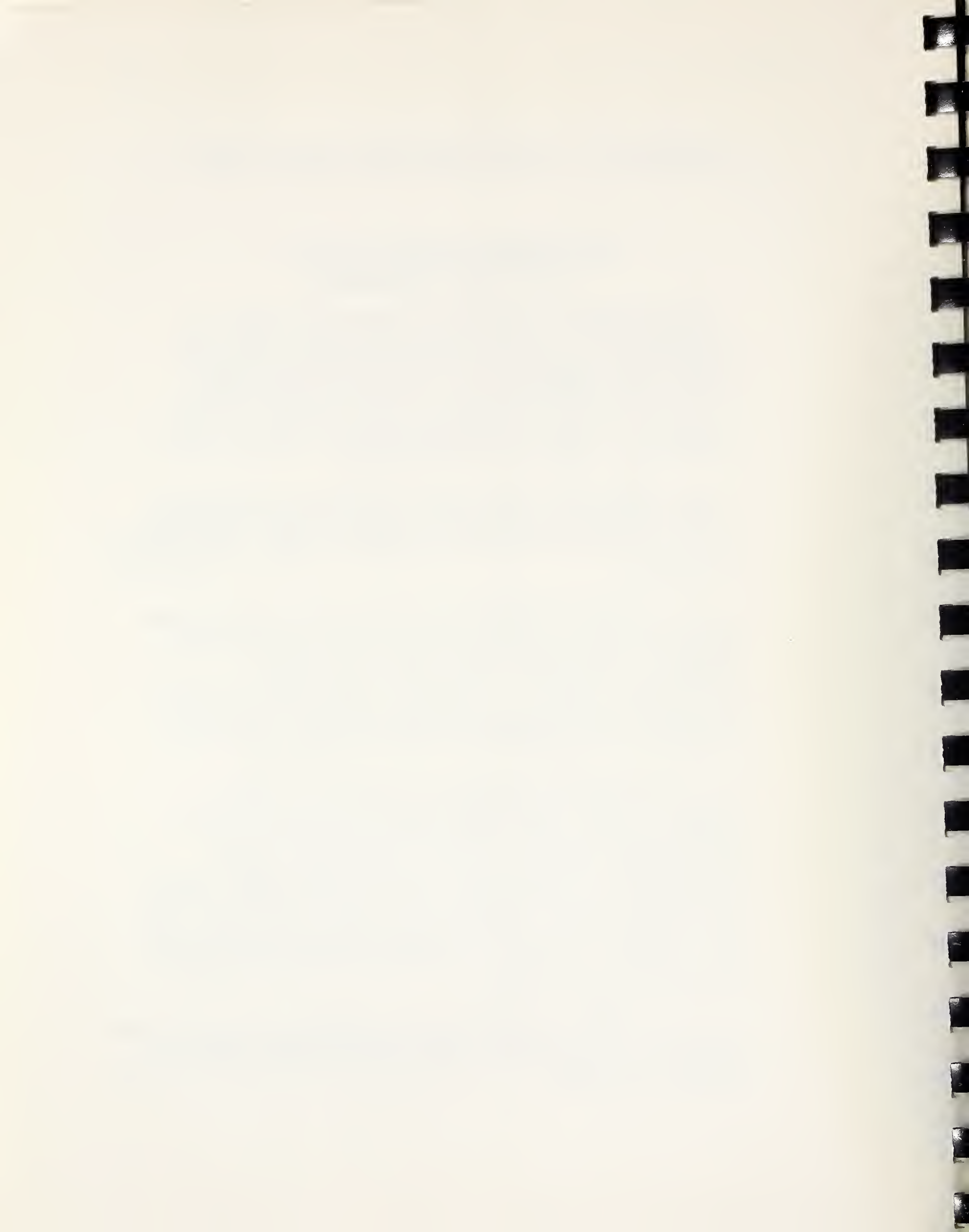
The doctors for whom you work have agreed to participate in a study whose results might make the Medicare program serve the elderly better, make less paperwork in your office and benefit physicians financially. We hope you will work with us to give the change a fair trial and that you will excuse any disruptions it causes at the beginning. These are the changes:

1. Your doctor has joined with several hundred other doctors in the area in helping to establish just what the fees will be when he takes "assignment." He has agreed to take assignment for all his Medicare patients.

2. The fee schedule has been established by the Social Security Administration with the help and advice of your doctor and his colleagues. It is based on a relative value scale and dollar conversion amounts. When your physician provides covered services for a Medicare patient, you can calculate the agreed-upon fee for that service or procedure by reference to the fee schedule.

3. A special feature of the study is that the physicians participating will be paid by the study's fiscal agent the entire amount of the agreed-upon fee that goes on the claims form. The doctor's office will not therefore need to be concerned with collecting the \$60 deductible amount the patient pays annually, nor will the office have to collect the 20 percent coinsurance directly from the patient. You will not have to bill the patient for services covered by Medicare when the patient has assigned his claim.

4. In order to separate the records of the Medicare patients in this study from those of other Medicare patients, the Medicare claims you will use are yellow, instead of white.



5. You will help the beneficiary to fill out and file his Medicare claim Form 1490, his claim form for private health insurance and a payment authorization form. We will try to simplify the claims filing as much as possible.

6. The patients in this study are being provided with a plastic card similar to charge plates so widely used by stores and gas stations now. Your doctor may have the loan of an imprinter for this card, if you ask for it. You will find imprinting the patient's name on your records, lab slips, orders for x-ray, etc., as well as on the pink version of SSA's Form 1490 can save you time and ensure accuracy, especially when one of your elderly patients has some difficulty in completing records.

7. The experiment is encouraging doctors to order home health services, where appropriate, as one way to keep hospital and nursing home stays to the minimum consistent with safety and health. The doctor in charge of the patient will be reimbursed by Medicare for developing a home health care plan. You can contribute by acquainting yourself with the resources available in the community and by reminding the doctor that a particular patient might benefit from care delivered at home and might be happier in a familiar environment.

WE NEED YOUR HELP!

We would appreciate receiving from you any suggestions for improving the system we are testing. If the system seems to result in a better, faster claims and payment process, it could become the established method of Medicare all over the country. So please help us get the bugs out of the system during the experiment.

Brochure 3. For the Physician

THE
ALTERNATE
REIMBURSEMENT
SYSTEM

An Explanation of the Experimental
Reimbursement System for Physicians
Participating in the Experiment

Table of Contents

How Payment is Determined	2
Remittances to Physicians	3
The Patient's Responsibility	4
Other Aspects	6

[Fiscal Agent]

Date



Brochure 3 (continued)

THE ALTERNATE REIMBURSEMENT SYSTEM

Medicare Part B benefit payments to physicians participating in the experimental reimbursement program are based on allowable charges determined by using a fee schedule promulgated by the Social Security Administration. Participating physicians are reimbursed in full for covered services, including the beneficiary's deductible and coinsurance liability.

All physicians participating in the experimental program have agreed that payments made by the experiment's fiscal agent in accordance with the fee schedule will constitute full payment for the services involved. No additional charges may be made to the patient for these covered services.

Under the experimental program, the doctor agrees to accept assignment on all Medicare claims. Payments are based on Form SSA-1490, Request for Medicare Payment, submitted by the physician. Copies of this form, printed on yellow paper, are supplied to physicians participating in the program. To facilitate claims processing under the experimental program, participating physicians are requested to use only the yellow form. (The printed text on this version of the form is identical with the white form supplied to other physicians.)



How Payment is Determined

A participating physician's charge is considered an allowable charge for reimbursement under the experimental reimbursement system if it is for a covered service and it does not exceed the fee specified in the fee schedule for that procedure or service. The fee schedule will be reviewed periodically at intervals not exceeding 12 months.

When an assigned claim is submitted, [fiscal agent] will pay the physician in full at the rate specified in the fee schedule and [fiscal agent] will collect the deductible and coinsurance. When the patient does not choose to assign his claim, the physician is required to charge the amount specified in the fee schedule and must bill the patient.

Physicians participating in the experiment cannot be reimbursed for services not covered under the Medicare program. If the physician performs noncovered services for a beneficiary, he should bill the patient directly for such services. If charges are submitted on Form SSA-1490, they will be disallowed. If the physician has any questions about whether a given service is covered, he may submit Form SSA-1490 request for payment, which will lead to a determination.

Brochure 3 (continued)

Remittances to Physicians

[Fiscal agent] makes periodic remittances to each physician participating in the experiment, covering payments due him on Forms SSA-1490 submitted in the experimental program. A single remittance may cover payments for services to more than one Medicare Part B beneficiary.

A "Remittance Notice" accompanying the check identifies each patient involved, his HIC number (Medicare Identification Number), name of the participating physician, dates of covered services for which reimbursement is being made, and a dollar breakdown with explanatory remarks codes.

The dollar breakdown will indicate any nonallowed charges (with appropriate explanation) as well as amounts actually paid to the physician on behalf of each beneficiary. A "Remarks Code" explains the reason for each nonallowed charge. A nonallowed charge may be, but is not necessarily, the patient's liability.

Brochure 3 (continued)

The Patient's Responsibility

Under the deductible provisions of Medicare Part B, each patient must pay the first \$60 of allowable charges for covered services in each calendar year. The experiment's fiscal agent, [name], collects payments for these charges from beneficiaries served by physicians participating in the experiment.

The coinsurance provisions of Medicare make every Part B beneficiary liable for 20 percent of the allowable charges for covered services in excess of the first \$60 in each calendar year. The experiment's fiscal agent collects this part of the allowable charges from beneficiaries served by physicians participating in the experiment.

[Fiscal agent] sends bills to beneficiaries or claims to private insurance companies for charges attributable to the deductible and coinsurance requirements. Each bill issued by the fiscal agent is based on information shown on a Form SSA-1490 submitted by the beneficiary's physician.

The patient is responsible for paying directly to the physician any charges for services that are not covered. The fiscal agent will not collect charges for noncovered services.

Brochure 3 (continued)

When billing is discussed with a Medicare beneficiary in the office of a physician participating in the experiment, the patient should be told that:

- . [Fiscal agent] will pay for 80 percent of covered services after the beneficiary has paid the first \$60 for covered services in any calendar year.
- . [Fiscal agent] will send the beneficiary a bill for (1) the first \$60 or any part of the first \$60 that has not yet been paid this year; and (2) for the 20 percent share of the remaining charges, or
- . [Fiscal agent] will bill the complementary insurance company, if the beneficiary authorizes it.

The physician or his office assistant should obtain the necessary information to complete Form SSA-1490, help prepare required claim forms for complementary private insurance and obtain a signed payment authorization.

If the patient expresses a preference for paying the physician directly and personally filing a claim for reimbursement by Medicare, the physician should:

- . Charge for his services in accordance with the approved fee schedule.
- . Accept the payment in full.
- . Provide the patient a receipted bill suitable for submittal with the beneficiary's claim (Form SSA-1490).
- . Give the patient a yellow Form SSA-1490 on which he can submit his request for reimbursement.

Brochure 3 (continued)

Other Aspects

Regarding other provisions of the alternate reimbursement system, you are referred to the Medical Service of D.C., Doctor's Medicare Handbook, since all the regulations regarding benefit coverage, claims processing, review and appeals, waiver of liability, etc., now in effect for Medicare Part B will be operative in the alternate system, unless you are notified in writing to the contrary.

III. DESIGN OF THE EXPERIMENT

3.1 Introduction

The purpose of this chapter is to set forth the design for the proposed experiment. It attempts to define a detailed plan for executing an experiment that will test the efficacy of the alternate reimbursement system as a means for achieving cost containment in the Medicare program, and it examines the willingness of physicians to accept a predetermined fee as payment in full for covered services to Medicare beneficiaries.

The essential elements of such a design are (1) a procedure for determining the members of the panel of physicians to be paid according to the alternate system and the members of the control group, (2) an administrative plan for carrying out the experiment, and (3) a documentation program for observing and measuring physician behavior as needed to estimate the effect of the alternate reimbursement system.

An experimental design must define the way in which control is exercised over variables or combinations of variables, known and unknown. Conventional wisdom ascribes to this a presumption of uniformity generally stated as "other things being equal." In this experimental design, some variables are controlled by "making other things equal," and some by a procedure that might be called "holding unequal things constant." The design was developed with the objective of eliminating (or at least minimizing beyond reasonable doubt) the possibility of attributing to the alternate reimbursement system effects produced by uncontrolled variables, such as personal characteristics of physicians who accept an invitation to participate in a test of this type. The design precludes the possibility of such causal



displacement by ensuring that variables associated with the personal and professional characteristics of physicians are about evenly distributed between the experimental group, whose members are reimbursed according to the alternate system, and the control group, whose members are reimbursed in accordance with standard Medicare procedures.

The components of the alternate reimbursement system determine the basic parameters of data development and analysis. The design attempts to set out the major variables involved in the experiment and their interrelationships, the framework within which specific hypotheses can be tested, and the behavior to be measured. The design is concerned primarily with the methodology for ensuring that the effects of the alternate and standard reimbursement systems on relevant aspects of physician behavior are fairly compared. It seeks to reduce both the systematic and random components of experimental errors in making this comparison.



3.2 Rationale of the Experimental Design

The basic design to be used in the experiment will follow as much as possible the classic rubric for evaluative social research. The alternate reimbursement system will be used by physicians in the experimental group, while physicians in the control group will continue to receive reimbursement under standard Medicare procedures. Data developed from the experiment will be used to compare ^① differences in physician behavior associated with availability of medical services to Medicare Part B beneficiaries and ^② containment of costs to beneficiaries and the system.

The basic research model, adapted from the Greenberg and Mattison model, is shown in figure 3.^{1/} This model may be called a "pre-test, post-test, control group design." It involves setting up 2 equivalent groups which are as alike as possible, then applying alternate reimbursement system to one of them.

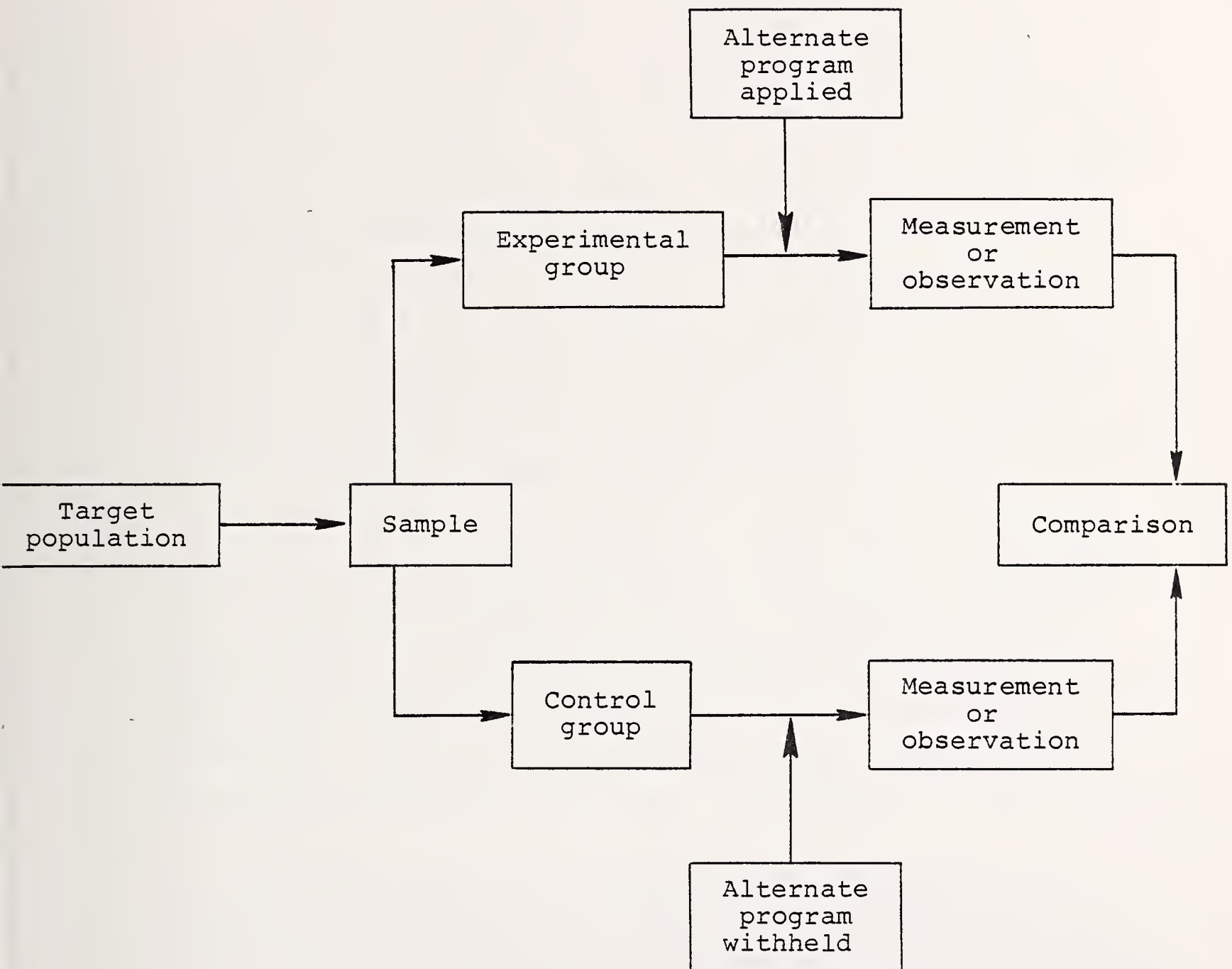
3.2.1 Definition of the Target Population

The target population for this experiment consists of all office-based, fee-for-service physicians serving Medicare beneficiaries in Montgomery and Prince George's Counties, Maryland. Provider-based physicians are excluded, as are doctors engaged in research, teaching, administration and other nonpatient-care activities. From this population the study team will recruit a panel of physicians who will agree

^{1/} Bernard G. Greenberg and Berwyn F. Mattison, "The Whys and Wherefores of Program Evaluation," Canadian Journal of Public Health 46 (July 1975):28.



Figure 3. Basic Design Flow Chart



to participate in a test of the alternate reimbursement system. Members of both the panel and the matched control group will be accepted for analytical purposes as they come to the experiment.

During the experiment, the internal composition of the sample will be analyzed statistically to determine how it compares to the target population or to other populations to which the conclusions of this study may be applicable. Data compiled by the American Medical Association indicate that information developed through this experiment might have some degree of policy relevance to the 55 percent of all U.S. physicians who are engaged in office-based practice. Table 4, which indicates the percentages of U.S. physicians engaged in patient care and in other activities, suggests that more than 200,000 U.S. physicians are potential providers of office-based services to Medicare beneficiaries.

The 2-county area in which the experiment is to be conducted has more physicians providing patient care than most U.S. communities. There is a heavier concentration of physicians in patient care in Montgomery County, which has one physician in patient care for every 442 persons residing in the county, than in Prince George's County, which has one patient-care physician for every 1,470 persons. (See table 5.)

The area also has a somewhat larger proportion of office-based (as opposed to hospital-based) physicians in patient care than does the United States as a whole, primarily due to the large number of office-based physicians in Montgomery County. According to AMA's reports of physician distribution in 1973, if the all-U.S. activity pattern of physicians engaged in patient care had been replicated in Montgomery County, the county would have had only 872 physicians in

Table 4. Activity Pattern of All U.S. Physicians, 1973

Activity	Percentage of physicians
Patient care.....	80.6
Office-based practice.....	55.0
Hospital-based practice....	25.6
Interns.....	3.3
Residents.....	12.6
Full-time staff.....	9.7
Other professional activity..	7.9
Medical teaching.....	1.7
Administration.....	3.3
Research.....	2.3
Other.....	0.7
Other activity not classified above.....	3.8
Inactive.....	6.2
Not available (address un- known).....	1.5
Total.....	100.0

Note: The total number of physicians in the United States in 1973 was 366,379.

Source: American Medical Association, Distribution of Physicians in the U.S., 1973, Chicago, 1974



Table 5. Medical Practice Environment for the
Experiment, 1973

Item	Montgomery County		Prince George's County	
	Number	Percentage	Number	Percentage
Patient care.....	1,278	72.2	477	80.8
Office-based practice....	1,049	59.1	326	55.2
Hospital-based practice.....	229	13.0	151	25.6
Other professional activity.....	161	9.1	28	4.8
Other activity, not classified above.....	196	11.1	56	9.5
Inactive.....	135	7.6	29	4.9
Total.....	1,770	100.0	590	100.0

Source: American Medical Association, Distribution of Physicians
in the U.S., 1973, Chicago, 1974.

office-based practice, instead of the 1,049 physicians reported by AMA. The distribution of physicians engaged in patient care in Prince George's County follows the national pattern for office-based and hospital-based physicians very closely. AMA reported that Prince George's County had 326 physicians in office-based practice in 1973; with replication of the national pattern, there would have been 325 such physicians in the county.

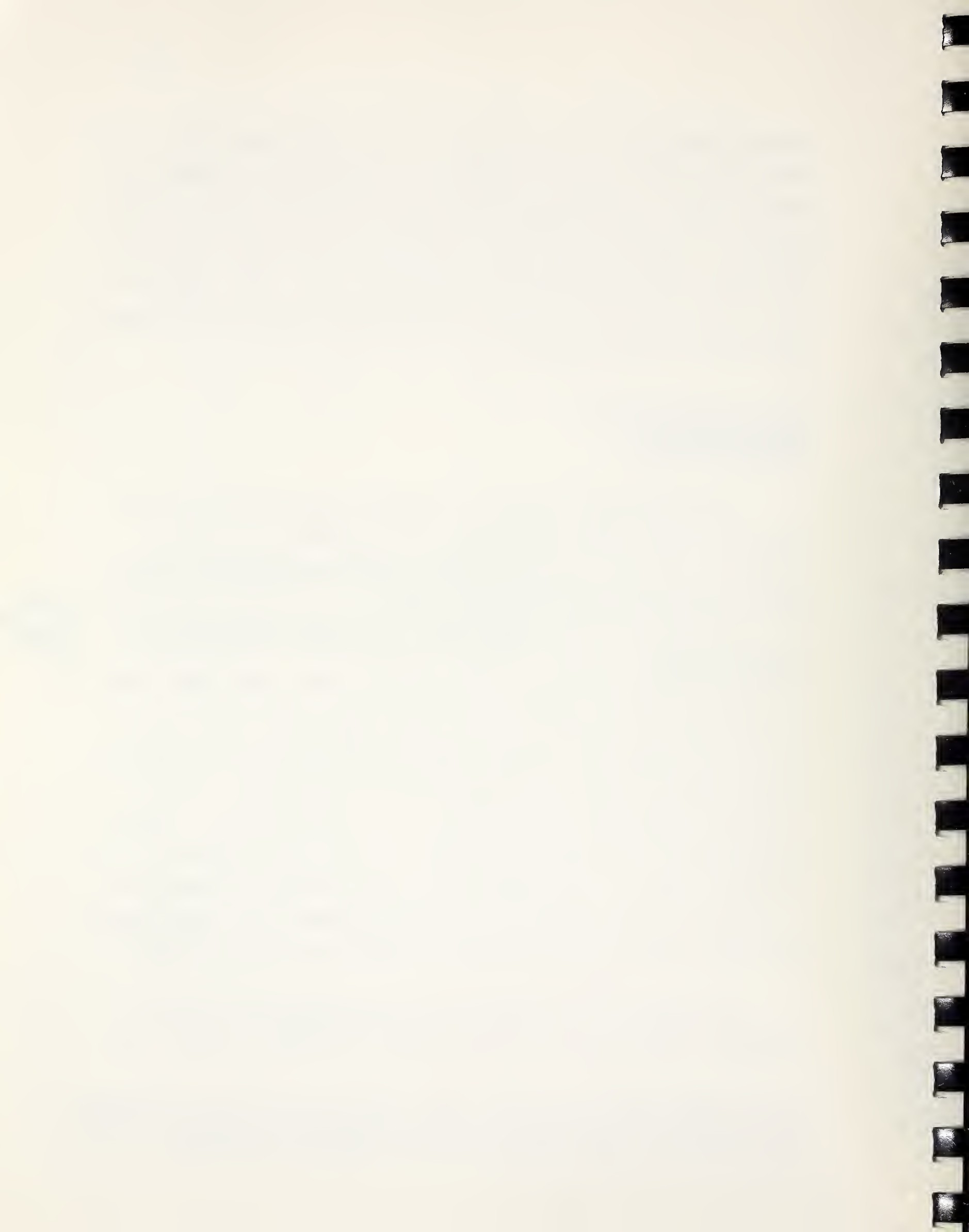
3.2.2 Selection of Experimental and Control Groups

An experimental group of volunteer physicians will be recruited from those physicians in Montgomery and Prince George's Counties who have served Medicare patients during the 2 years preceding the experiment. For planning purposes it is assumed that the experiment will be conducted over a 2-year period, calendar years 1976 and 1977. Therefore, volunteering physicians will be sought from among those who served Medicare beneficiaries during 1974 and 1975.^{1/} A history of such services is a prerequisite for the experimental group because it will ensure that a record of prior behavior on matters of interest to the experiment can be obtained from Medical Service of D.C. (Blue Shield), which handles medical insurance claims for the Social Security Administration in Montgomery and Prince George's Counties. A record of prior services is also necessary for identifying matching control group members in the Blue Shield records.

*2 year
project*

The sample of physicians for the experiment will be created, rather than drawn at random, through 2 steps: (1)

^{1/} In the actual experiment the 4-year period can be adjusted to accommodate the annual cycles on which the Medicare program records are normally summarized for operating purposes.



recruitment of the experimental group, and (2) selection of a matching control group. The 2 groups will be as similar as possible on factors that might affect the measures to be used in analyzing the experiment.

Physicians who express their willingness to participate in the test under the terms specified in the invitation will be considered for assignment to the experimental group. Assignment to the group will be contingent upon satisfaction of the following requirements:

1. Each participant must have a history of service to Medicare Part B beneficiaries, to ensure that the Blue Shield data bank has a record of beneficiaries served, services performed, fees charged, and reimbursements made.

2. Managers of the experiment must be able to identify a matching nonparticipating physician having a history of services to Medicare Part B beneficiaries in the Blue Shield's claims records.

Control group members will be selected on the basis of their general similarity to their counterparts in the volunteer group. Only 2 general characteristics will be used for matching: age and specialty. This design decision rests on assumptions that the behavior of interest in this experiment is not influenced by the physician's sex, race, ethnic background, or the county in which he practices. These assumptions eliminate the need for using in the matching process a large number of independent variables that are essentially personal characteristics. The validity of the assumptions can be analyzed statistically in an evaluation of the experiment without encumbering the design.

There are also practical reasons for using as few matching criteria as possible. Failure to find a counterpart for the control group would preclude using in the experimental group a volunteer who was recruited at considerable expense. If matching criteria are excessively detailed, losses because of selection specifications could become intolerable.

Design options that can be used effectively in setting up an experimental group based on volunteers are very limited. However, some discretion can be exercised in the process of recruiting volunteers where initiative rests with managers of the experiment. Invitations could be extended on a broadcast basis to all office-based, fee-for-service physicians in the 2-county area (the entire target population); or they could be issued to a select list of physicians, such as one that seeks to influence the structure of the experimental group by addressing only potential volunteers who constitute a representative cross-section of the target population. However, the latter course might elicit such a strong adverse reaction from physicians in the area that the experiment would become impossible to administer. This experimental design therefore assumes that invitations to participate will be extended simultaneously to the entire target population and that no attempt will be made to influence the composition of the experimental group through selective invitation.

The voluntary nature of the participation makes it impossible to avoid self-selection bias and equally impossible to match exactly the volunteers with a control group from those who do not volunteer. We should expect that, all other things being equal, physicians who regularly charge more than the allowable will be less likely to commit themselves

to a 100-percent acceptance of assignment and a fee schedule. We will control experimentally and statistically for as many characteristics as possible of physicians and their practices, and we will draw inferences from rigorous analysis of the data. We recognize that certain biases inhere in an experiment that rests on self-selection. We are prepared to overcome some of this difficulty by "selecting out" some volunteers if this becomes necessary for the integrity of the experiment.

3.2.3 Specification of Age Cohorts

It is hypothesized that physician behavior of interest to this experiment may be conditioned by such factors as the age of the physician, the length of time he or she has practiced medicine, and viewpoints developed during professional development. These factors may include influences as varied as the physician's current career status or financial position and the public taste, professional consensus, or statutory norms prevailing during the physician's formative years. The design problem here involves bringing such factors under control.^{1/}

^{1/} Theoretically such control would be achieved effectively through randomization; i.e., selecting a sample at random from the office-based, fee-for-service physicians of Montgomery and Prince George's Counties, then dividing this sample at random into the experimental group and the control group. In that event each group would be selected without bias and would probably contain in equal degree the unknown and unmeasured factors represented in the professional outlook of physicians of different ages and career levels. Since this experiment is predicated on the establishment of an experimental group of volunteers, randomization is not possible. Moreover, it would have questionable utility in an experiment extending over 2 years, during which each member of the experimental group may choose to withdraw on any of a frequently recurring series of opportunities consisting of the individual Medicare claim, on which he accepts or does not accept assignment. Attrition in the experimental group would destroy its random character before the behavior of interest in this experiment could be observed and measured.

A physician's professional development includes medical school training, licensing, internship, residency. Years since graduation from medical school, therefore, represent years of active professional life. Stratification by age-cohort groups based on the year of graduation from medical school permits organization of the experiment's target population into a manageable number of groups having coherently similar levels of age, experience, and contemporary professional development. Using a similar approach in a study for the Health Insurance Benefits Advisory Council, Research Triangle Institute observed that "this...stratification is also correlated with age of the physician and financial status."^{1/}

The experimental and control groups will each be divided into 4 strata based on time since graduation from medical school, to permit comparisons by age, years of experience, and contemporaneous professional development. The stratification by age cohorts tentatively selected is summarized in table 6.

Table 6. Age Grouping

Stratum	Number of years since graduation
Group 1.....	10 years or fewer
Group 2.....	11 to 20 years
Group 3.....	21 to 30 years
Group 4.....	More than 30 years

^{1/} Department of Health, Education, and Welfare, A Report on the Results of the Study of Methods of Reimbursement for Physicians' Services under Medicare, SS Publication No. 92-73, July 1973, appendix C, p. 7.

Table 7 shows the age-cohort distribution of 1,471 currently active office-based physicians in the 2-county area who were reported by Medical Service of D.C. to have a record of service to Medicare beneficiaries. The year of graduation from medical school is not available for 37 physicians. Of the remainder, 718 graduated after 1955 and 716 graduated in 1955 or earlier.

The proposed stratification by age-cohorts will be refined as necessary when the volunteers for the experimental group have been identified. Criteria to be observed in the stratification will be as follows:

1. Physicians who volunteer for the experiment will be divided into 4 strata based on year of graduation from medical school.

2. The 2 older strata will be approximately equal in size to the 2 younger strata, from which they will be separated at the median after graduation.

3. The strata immediately above and below the median year will represent 10-year intervals.

A review of the reimbursement experience of 89 randomly selected physicians in the 2-county area who performed services for Medicare beneficiaries in 1974 indicates that physicians with fewer years of practice respond differently to the available Medicare reimbursement than those that have been in practice longer. The sample included 45 physicians with fewer than 20 years of practice and 44 physicians with more than 20 years of practice. Table 8 shows that physicians with fewer than 20 years of practice accepted assignment for a larger volume of services than older physicians did.

Table 7. Age Cohorts for Physicians in Montgomery
and Prince George's Counties

Year of graduation	Number	Percentage
1966 and since.....	106	7.2
1956 to 1965.....	612	41.6
1946 to 1955.....	400	27.2
1945 and before.....	316	21.5
Unknowns.....	37	2.5
Total.....	1,471	100.0

Source: Medical Service of D.C., listing of office-based physicians in Prince George's and Montgomery County serving Medicare beneficiaries; American Medical Association, American Medical Directory, 26th Edition, 1973; Montgomery County Medical Society, Inc., The Directory of Physicians, 1975-1976; The Washington Physicians Directory, 1974, National Directories, Inc., Washington, D.C., 1974.

Table 8. Acceptance of Assignment by Younger and Older Physicians, 1974

Acceptance criterion	Fewer than 20 years of practice		More than 20 years of practice	
	Number	Percentage	Number	Percentage
Physicians accepting assignment on claims involving more than half of their Medicare reimbursement.....	21	47	7	16
Physicians accepting assignment on claims involving less than half of their Medicare reimbursement.....	24	53	37	84
Total.....	45	100	44	100

Source: Medical Service of D.C., special computer run for this study.

3.2.4 Specification of Specialty Groups

Two basic criteria are used in defining the specialty groups established for this experiment, shown in table 9:

(1) Each group must include services clearly relevant to health care generally required by older patients; and (2) similar types of care are grouped together to reduce the specialty subsets to a manageable number for analytical purposes.

Volunteer physicians with medical specialties not listed in the table will be classified in specialty group B, medical specialties, except for surgical specialties which will be placed in group C. This procedure will ensure proper classification of data derived from all physicians who may participate.

The specialty distribution of office-based physicians who have provided services to Medicare beneficiaries in Montgomery and Prince George's Counties follows closely the national pattern, as shown in table 10. The table suggests that the experimental area may have somewhat fewer surgeons and somewhat more psychiatrists and gynecologists than other communities, but no significant disparities are indicated.

Detailed distribution of the specialties of Medicare providers in the 2-county area is shown in table 11. Composition of any random sample drawn from the target population will tend to reflect the relative frequencies shown in the table. Substantial deviations from these frequencies will alert managers of the experiment to bias introduced through voluntary participation.

Table 9. Definition of Specialty Groups

Specialty group	Medical specialties included
A. General practice.....	Family practice General practice
B. Medical specialties.....	Allergy Cardiovascular disease Dermatology Endocrinology Gastroenterology Internal medicine Pulmonary disease Rheumatology
C. Surgical specialties.....	General surgery Other surgical specialties: Cardiovascular Colon and rectal Neurological Plastic Orthopedic Thoracic Ophthalmology Otorhinolaryngology Urology
D. Psychiatric medicine.....	Psychiatry Psychoanalysis Psychosomatic medicine
E. Other specialties.....	Anesthesiology Diagnostic radiology Pathology Radiology

Table 10. Specialty Distribution of Physicians Performing Services of the Type Used by Medicare Beneficiaries Throughout the United States and in Montgomery and Prince George's Counties

(In percent)

Specialty	United States	Montgomery and Prince George's Counties
Anesthesiology.....	4.4	3.0
General practice ^{a/}	20.0	23.0
Internal medicine ^{b/}	22.7	22.6
Obstetrics-gynecology..	7.6	12.2
Pathology.....	4.2	1.5
Psychiatry.....	9.2	12.7
Radiology.....	5.7	2.3
Surgery ^{c/}	26.2	22.7
Total ^{d/}	100.0	100.0

^{a/} Includes family practice.

^{b/} Includes allergy, cardiovascular disease, gastroenterology and pulmonary disease.

^{c/} Includes general surgery, neurological surgery, ophthalmology, orthopedic surgery, otorhinolaryngology, plastic surgery, thoracic surgery and urology.

^{d/} The total number of physicians in these specialties in the United States is 270,754, in the Montgomery-Prince George's County area is 1,471.

Source: For the United States: American Medical Association, Distribution of Physicians in the United States, 1973, Chicago, 1974. Montgomery and Prince George's Counties: Medical Service of D.C., special listing prepared for this study.

Table 11. Specialty Distribution of Physicians
in Montgomery and Prince George's Counties

Specialty	Number	Percentage
General practice.....	261	17.7
General surgery.....	96	6.5
Allergy.....	5	0.3
Otology, laryngology, rhino- logy.....	43	2.9
Anesthesiology.....	42	2.9
Cardiovascular disease.....	13	0.9
Dermatology.....	40	2.7
Family practice.....	64	4.3
Gastroenterology.....	17	1.2
Internal medicine.....	280	19.0
Neurology.....	14	1.0
Neurological surgery.....	12	0.8
Obsterics-gynecology.....	172	11.7
Ophthalmology.....	60	4.1
Orthopedic surgery.....	63	4.3
Pathology.....	21	1.4
Plastic surgery.....	15	1.0
Physical medicine and reha- bilitation.....	7	0.4
Psychiatry.....	179	12.2
Pulmonary diseases.....	3	0.2
Radiology.....	33	2.2
Thoracis surgery.....	6	0.4
Urology.....	25	1.7
Total.....	1,471	100.0

Source: Medical Service of D.C., special listing prepared
for the study.

Table 12 shows the distribution among the specialty groups of physicians providing services to Medicare beneficiaries in the 2-county area. A review of the number of beneficiaries served in 1974 by a randomly selected sample of 89 of these physicians indicates considerable variation in the number of beneficiaries served by physicians in different specialty groups. Table 13 illustrates this variation.

The random sample of Medicare providers included 67 physicians in Montgomery County and 22 in Prince George's County. When reimbursement data are controlled for county, there appear to be no significant intercounty variations. Table 14 shows the amount of allowed charges received in 1974 by specialty. It is evident that the reimbursement for services rendered Medicare beneficiaries does not make up a major part of the average physician's annual income. However, the inclusion of 4 urologists with an extraordinary large Medicare practice in Montgomery County's specialty group C has a very large impact on the overall intercounty comparison. When these 4 physicians are deleted from tabulation, the higher mean value of services performed by Montgomery County physicians is considerably reduced.

Psychiatrists serve markedly few Medicare beneficiaries. The total of allowed charges during 1974 in the D.C. sample averaged \$216 per psychiatrist. Review of raw data underlying this datum discloses that the maximum total of actual charges during 1974 by any of the psychiatrists in the sample was \$1,100, and the maximum allowed charges added up to \$461.55. These data are consistent with the findings of a national survey of ambulatory care; the number of visits

Table 12. Specialty Group Distribution of Physicians
in Montgomery and Prince George's Counties, 1974

Specialty group	Number	Percentage
A. General practice.....	325	22.1
B. Medical specialties.....	372	25.3
C. Surgical specialties.....	492	33.4
D. Psychiatric medicine.....	186	12.6
E. Other specialties.....	96	6.6
Total.....	1,471	100.0

Source: Medical Service of D.C., special computer
printout of Medicare providers.

Table 13. Average Number of Beneficiaries Served by
Physicians in Different Specialty
Groups, 1974

Specialty	Number of physicians	Average number of benefi- ciaries served	Annual average allowed charges (In dollars)
A. General practice.....	17	82	5,626
B. Medical specialties...	24	116	15,622
C. Surgical specialties..	36	52	7,589
D. Psychiatric medicine..	7	3	216
E. Other specialties.....	5	221	12,492
All physicians.....	89	81	9,076

Source: Medical Service of D.C., special computer summary
of services performed for Medicare beneficiaries.

Table 14. Average of Annual Reimbursement for Physicians Who Served Medicare Beneficiaries in Montgomery and Prince George's Counties, 1974

Specialty group	Montgomery County		P.G. County	
	Number of physicians	Annual average allowed charges (in \$)	Number of physicians	Annual average allowed charges (in \$)
A. General practice.....	13	5,943	4	4,597
B. Medical specialties..	20	17,234	4	7,564
C. Surgical specialties.....	26 ^{a/}	9,724 ^{a/}	10	2,039
D. Psychiatric medicine.....	7	216	--	--
E. Other specialties....	1	10,476	4	12,996
All physicians.....	67	10,250	22	5,501

Note: Based on services performed in 1974.

a/ Includes 4 urologists who performed services for Medicare beneficiaries with an average value of \$50,673 per physician. When they are excluded, the average allowed charge for specialty group C drops to \$2,278; the total is reduced to \$7,683.

Source: Medical Service of D.C., special computer run for this study.

to psychiatrists by persons 65 years of age and over was so small as to be statistically insignificant.^{1/}

The limited amount of psychiatric services rendered Medicare beneficiaries reflects not only legal and administrative restrictions on coverage and reimbursement, misunderstanding of mental illness or reluctance to seek psychiatric care on the part of the elderly, but also the "psychiatric profession's therapeutic nihilism toward the elderly [which] may reflect unresolved countertransference issues that result in a form of prejudice called 'agism.'"^{2/} Despite the profession's inadequate responses, evidence exists that older people can benefit from mental health care and that signs and symptoms of senility can often be overcome with proper psychiatric help.^{3/} Whether changes in Medicare reimbursement could lower the barriers to psychiatric care for the elderly is moot.

Specialty group C includes the largest number of specialties. It also exhibits the widest intragroup variation in the number of beneficiaries served and in the volume of reimbursable services performed. Table 15 shows the nature of this variation. The data summarized in the table indicate clearly that in seeking a control group counterpart for a volunteer from any of these specialties, the match should be made if at all possible from within the same surgical specialty. Urologists and plastic surgeons, for example, represent opposite ends of the Medicare service-and-reimbursement spectrum.

^{1/} Department of Health, Education, and Welfare, "National Ambulatory Medical Care Survey: May 1973-April 1974," Monthly Vital Statistics Report 24, no. 4, supplement 2, July 14, 1975.

^{2/} Robert N. Butler, M.D., "Psychiatry and the Elderly: An Overview," The American Journal of Psychiatry 132, no. 9, September 1975:893.

^{3/} Ibid.

Table 15. Number of Beneficiaries Served by Physicians in Specific Surgical Specialties and Mean Value of Covered Services Performed by Physicians in Each Specialty, 1974

Surgical specialty	Number of physicians	Average number of beneficiaries served	Mean value of annual total of allowed charges (in dollars)
General surgery.....	2	37	7,408
Otorhinolaryngology.....	6	58	2,742
Obstetrics-gynecology.....	13	11	901
Ophthalmology.....	2	88	5,289
Plastic surgery.....	4	4	610
Orthopedic surgery.....	4	26	2,075
Urology.....	5	199	40,570
All surgeons.....	36	52	7,589

3.3 Conduct of the Experiment

The following paragraphs set out the sequence of events for Phase II, providing an overview of what actions will be performed, who will perform them, and what they are expected to accomplish. The scenario also identifies some items that will require design attention or development when the experiment gets under way.

3.3.1 Startup Period

Participants in the experiment include RRNA, the doctors' organizations, the fiscal agent, the Health Insurance Benefits Advisory Council (HIBAC) and the Social Security Administration. RRNA will use the startup time, approximately 4 months, to organize itself and the other participants as follows:

1. An RRNA team, consisting of administrators, researchers and professional relations personnel experienced in the health care and health insurance fields and knowledgeable about the local scene, will be assembled and given an orientation to the program.

2. Meetings with the HIBAC committee will be held to work out a modus operandi.

3. Official clearance of revised forms will be obtained. Brochures and other educational materials will be readied for the printer.

4. Contracts with doctors' organizations and the fiscal agent will be negotiated, stipulating the terms of their participation in the experiment.

5. Nomination of consultants, both physician and non-physician, will be made, and their names will be submitted to SSA for approval.

Physicians in Prince George's and Montgomery County have participated in the design phase in different ways, but their roles in the implementation phase are undecided at this time. The president, vice president and treasurer of the Prince George's County Medical Care Foundation have been serving as advisers in an unofficial capacity and are prepared to continue in this role. The Prince George's Medical Society cooperated in making available their mailing list so that a letter on RRNA letterhead describing the project reached every member. However, in a general membership meeting on June 2, 1975, the Prince George's Medical Society defeated a motion "to participate in the RRNA proposal." This occurred before the contract was awarded and before the protocol had been developed. It is not clear whether an affirmative decision by SSA to implement the protocol would be considered a different proposition by the Society.

In Montgomery County, one of the organized medical groups has assisted in the design phase and has agreed to communicate its comments on the protocol and its decision to accept or reject a role in the experiment to the Social Security Administration after a detailed study of the protocol.

At this time, the participation of the organized societies in Montgomery County and Prince George's County is uncertain. We have not discussed participation with societies in the District of Columbia or Virginia, nor have we approached groups in other areas. It should be pointed out that nothing in the experiment is indigenous to the Washington area nor requires that it be limited to a particular or a single location.



Medical Service of D.C. has raised a number of issues that it feels must be clarified before it can commit itself. They are as follows:

1. Funding

It can be assumed that Medical Service of D.C. would be reimbursed its reasonable cost for performing the duties of the Fiscal Agent. However, would reimbursement be forthcoming for developmental expenses to explore the ability of Medical Service of D.C. to in fact act as the Fiscal Agent? With regard to the experiment itself, how will the claims expense be funded? From Fiscal Agent funds to be replaced at a later time or will the Fiscal Agent receive advance funds from which to disburse payment to physicians? In the event that a beneficiary does not refund the deductible and/or coinsurance amounts, from what funds will these losses be covered?

2. Physician Participation

There are no estimates yet available concerning the number of physicians who might be expected to participate in the experiment and thus we are unable to anticipate the potential impact this might have on our professional affairs. Also, inasmuch as Medical Service of D.C. is aware of no physician inquiry or comment regarding the experiment, there is concern that the medical community may not intend to lend significant support to the experiment. If so, Medical Service of D.C. involvement in the experiment might be unwise due to the adverse affect which could be realized on its role as a carrier for the Medicare Program and the relationships with physicians or on its private business.



3. Claims Volume

It is evident that without an estimate of the number of physicians who will participate and the volume of their patient load which is eligible for Medicare, it is impossible to estimate the claims load. This, then, prohibits making any estimates regarding manpower or other administrative duties which might be required to handle the claims volume.

4. Systems Development

Systems development for the period of the experiment would be necessary if the volume of claims was significant. It certainly would be required if the experiment proved successful and its reimbursement methodology was adopted for widespread application to the Medicare Program. Where will Medical Service of D.C. stand in regard to this? Will Robert R. Nathan Associates assist in the assessment effort and will there be a means of recovering our cost in systems development? Also, in view of the unknowns regarding claims volume, it is impossible to establish the most efficient and economical method for handling the experiment's claims.^{1/}

Robert R. Nathan Associates is prepared to undertake those functions that the doctors' organizations and Medical Service of D.C. feel they cannot do; for example, RRNA is prepared to nominate physicians to act as consultants to SSA, and RRNA will arrange for claims processing and bill collecting by a special unit within its organization or by another qualified organization with experience in Medicare claims processing. In the light of the discussions that have taken place during Phase I, and taking into account the time lapse during which SSA makes a decision, a month or

^{1/} Letter from R.E. Tomlin, Vice President, Medical Service of D.C., dated October 7, 1975.



more should be allowed for the organizations to commit themselves to the experiment.

3.3.2 Initiation of Experiment

Negotiation

To begin the experiment, representatives of SSA, physician consultants of Montgomery and Prince George's Counties and the nonphysician experts will engage in a series of meetings under the auspices of an HIBAC committee to reach agreement on the relative value scale and conversion factors to be submitted to the Social Security Administration. X

(Midway in the experiment, a second round of negotiations will take place to update the fee schedule. At that time, the physicians' representatives will be selected by the volunteer physicians through a mail ballot.)

Recruitment Drive

SSA will then offer the schedule of fees to all office-based, fee-for-service physicians serving Medicare beneficiaries in both counties. The initial contact would be made in a letter from SSA explaining the background and purpose of the experiment and placing the study in a favorable nonthreatening perspective. The detailed terms of participation will be communicated to physicians through organized groups in the county or by RRNA in a series of follow-up mailings and personal visits. A public relations consultant who has done considerable work in this area with the medical communities would advise us.



Selection of Control Group

Response analysis. The study team will review responses, classify physicians willing to participate, and establish a tentative experimental group roster, blocked out by specialty group and age-cohorts.

Matching. Using the tentative experimental group roster the study team will determine whether it is possible to match each volunteer with a nonvolunteering physician in the same block.

Designation of experimental doctors. The study team will notify each volunteer who has been matched that he or she has been accepted for participation in the experiment and will offer the volunteers a participation agreement for signature. (This design is prepared on the assumption that it will be possible to accept all volunteers. It is conceivable, although unlikely, that some blocks of age-cohorts or specialty groups may be oversubscribed, a situation that would arise only if more than one-half of all physicians in a target block volunteered.)

The study team will distribute to each physician who signs the reimbursement agreement those supplies needed for participation in the experimental group -- an information kit for the physician's office staff, information handouts for Medicare Part B beneficiaries, forms to be used in the experimental billing procedures, etc.

Control group assignments. After signed agreements have been received from volunteers, the study team will make control group assignments by drawing group members at random

from the appropriate blocks of nonvolunteers in the unassigned pool.

Arrangements with Commercial Insurance Companies

Commercial insurance companies other than Blue Shield will be contacted to arrange for coordination of claims processing. *

3.3.3 Implementation of the Alternate Reimbursement System for Volunteer Physicians

Approximately 6 months after Phase II starts, doctors will be submitting claims under the alternate system. The experiment's fiscal agent will receive these claims for a period of 2 years; review claims for payment under the terms of the reimbursement agreement; make or authorize payment to participating physicians; collect amounts owed by beneficiaries for deductible and coinsurance; request reimbursement from Blue Shield for standard Medicare Part B allowances for ? covered services on the claims of volunteer physicians; receive, record and deposit remittances from beneficiaries and Blue Shield; and maintain records required for analysis of the experimental operation. Experimental effectiveness requires that procedures used by the fiscal agent follow as closely as possible the blueprint of the alternate reimbursement system as its designers expect it to operate should SSA adopt it. Moreover, the fiscal agent should perform the actual functions, rather than simulate them.

Medicaid,
other insurers!

Since the alternate reimbursement system includes beneficiary service functions, such as helping beneficiaries prepare and submit claims for supplementary insurance



benefits, these functions are included in the test. Including beneficiary services as an element of the system has policy implications that far outweigh its theoretical experimental design impact. The seriousness of such a policy decision suggests that SSA policymakers will have considerable interest in both the experimentally demonstrated effects and the statistically explained cost-containment inferences, especially those that indicate the contribution each element makes to the total cost-containing effect. While the experiment alone will not provide all the information a policymaker would want, it can cast light on the impact of the proposed innovations on program costs.

3.3.4 Operation of Research Program

Data Collection

From the experiment's fiscal agent and from Medicare Part A and Part B records of the Medical Service of D.C. and Group Hospitalization, Inc., the study team will obtain detailed information regarding (1) the Medicare Part B claims history of physicians in both the experimental and control groups for the 2-year period prior to the test and the 2 years of the experiment, and (2) the use of Medicare Part A by the beneficiaries served by physicians in the 2 groups during that 4-year period. *

Monitoring

The study team will monitor the operation of the experimental program through (1) monthly printouts of claims filed for reimbursement of services performed by the volunteer physicians; (2) liaison with the experiment's fiscal agent;



and (3) exchange of information with the organized medical groups of Montgomery and Prince George's Counties and with the volunteer physicians.

Analysis of Pretest Experience

The study team will analyze (1) the pretest experience of physicians in both the experimental and control groups and of their respective age-cohort and specialty group blocks, and (2) the total range of Medicare-related services used by the beneficiaries they have served. This analysis should establish baseline data, such as the volume and cost of services performed for Medicare Part B beneficiaries in various settings (e.g., physician's office, inpatient hospital, patient's home, extended care facility, etc.) and patterns of services provided.

Interim Report

After 7 months of system operation, the study team will prepare a comprehensive report, organized like and in the same format as the final report, setting forth a detailed description of the alternate reimbursement system; a summary of organization, objectives, and methodology of the experiment; the test used to determine the alternate system's efficacy; and the preliminary findings and conclusions.

Renegotiation of the Fee Schedule

Managers of the experiment will provide staff support for HIBAC in the negotiation of a revised fee schedule with representatives of SSA, physician consultants and nonphysician



advisers. The outcome of the second round of negotiations, which is probably the last item on the experiment's administrative agenda that significantly affects the design of the experiment, will govern reimbursement of participating physicians in the second year of the test. Amended participation agreements from volunteer physicians will be required.

The study group's remaining activities involve (1) continued performance of recurrent functions, such as monitoring equipment and collecting and analyzing data; (2) development of a comprehensive final report; and (3) close-out of experimental operations in a manner that will fit participating physicians into then-existing standard Medicare Part B routines.

*
New RK
Screens

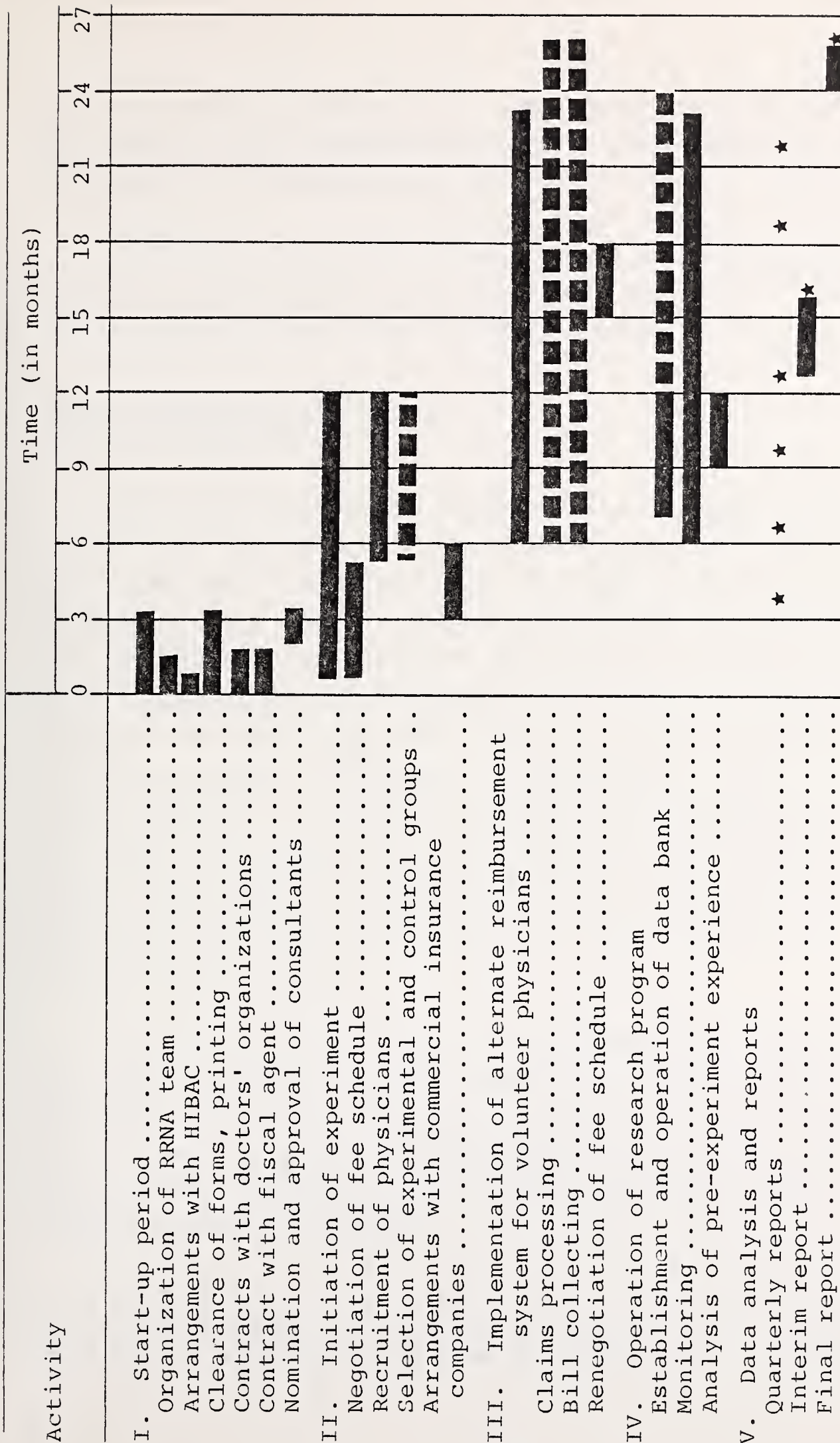
3.3.5 Time Schedule of Activities

The time schedule of the activities in the conduct of the experiment is shown in figure 4. The first 4 months are devoted to start-up efforts. Negotiation of the fee schedule begins in the second month with the collection of data and analytical staff work and is completed by the sixth month. Recruitment of physicians begins in the sixth month and continues for about 6 months. Volunteer physicians will be filing claims under the alternate system in the sixth month, but it can be expected that it will take several months to complete the recruitment drive. Participation in the experiment will terminate in the twenty-third month, although reimbursement of claims and bill collecting will continue until the end of the contract. In addition to quarterly reports, a more detailed interim report will be submitted in the sixteenth month and a final report at the end of the twenty-sixth month.

*
see P. 124



Figure 4. Time Schedule of Activities in Conduct of the Experiment



The data analysis prepared for the interim report will be an input to the renegotiation of the fee schedule in the fifteenth to eighteenth months.

Because it will take time to start up and to recruit doctors to participate, the experiment will have less than 2 years to test the alternate system.

3.3.6 Physician Withdrawal from the Experiment

The formal agreement signed by the volunteer physician stipulates that he notify the fiscal agent in writing of his intention to withdraw from the experiment 30 days in advance of such action. Since the alternate reimbursement system requires participating physicians to accept assignment on all claims for reimbursement in accordance with the schedule of negotiated fees adopted in the experiment, failure to accept assignment in any Medicare case or to charge according to the fee schedule will automatically terminate the physician's participation in the experimental group^{1/} and any further opportunity to claim reimbursement under the negotiated fee schedule of the experimental reimbursement system.

A participating physician's obligation to accept assignment cannot be enforced by the managers of the experiment. Moreover, since the experiment is concerned with evaluation of an incentive system, forced compliance would be counter-productive. Withdrawal from the participating panel is in itself a datum of interest.

^{1/} With the exception of those instances when nonassignment is due to a decision of the beneficiary.



Notice of withdrawal may come to the attention of the fiscal agent whenever (1) a participating physician submits a claim for reimbursement in which the charges for covered services differ from the negotiated fee schedule, or (2) the fiscal agent receives notification from D.C. Blue Shield of a beneficiary-filed claim on which the participating physician did not accept assignment. Before terminating a physician's participation, the fiscal agent will review the event and, if necessary, verify the physician's intention to withdraw. This review may disclose that the physician is not withdrawing but did not accept assignment because the beneficiary refused to assign the claim (e.g., preferred to pay for his medical services in cash and claim reimbursement himself).

3.3.7 Methodology for Returning Volunteer Physicians to the Prevalent Medicare Part B Reimbursement System

During and after the experiment, volunteer physicians will return to Medicare Part B's basic method of physician reimbursement, which will probably be the current modified formula of customary-prevailing-reasonable (CPR). CPR pays the doctor on the basis of an allowed charge. This charge hinges on which of 3 physician fees is lowest:

1. The actual or submitted charge; today's charge for the service or procedure.

2. The customary charge, which represents what the physician has been charging in the past.

3. The prevailing charge, which represents a kind of upper bound on the customary charge based on

what most physicians in the community have been charging in the past.^{1/}

The problem that will be posed by the volunteer physician is that he will have a gap in his customary charges, since as a participant in the experiment, he will have been billing according to the RVS and agreed-upon conversion factors.^{2/}

This problem occurs even now under Medicare in the case of doctors new in the community, who initially have no customary charges to show. It is solved by taking the prevailing charge at the 50th percentile for a procedure as the customary charge of a new doctor for that procedure. This is a possible solution for our case: treat returning volunteer physicians as new doctors for the purposes of arriving at customary charges. However, an objection is sure to arise if the 50th percentile prevailing charge for most procedures is lower than the fee formerly fixed by the RVS and the conversion factor. ①

Another possible solution might be to accept the fee arrived at by using RVS and the conversion factor as the ②

^{1/} From now on, the prevailing charge (both at the 50th and at the 75th percentiles) will not change in response to changes in the customaries, as was once intended, but will be contained by a ceiling imposed by a weighted average of economic indexes; in other words, now the prevailing charge cannot rise by more than the rise in these economic indexes.

^{2/} A related problem occurs when a physician has customary charges for some but not for all of the services he is currently performing. It has recently received SSA's attention. (Part B Intermediary Manual Revision Transmittal No. 466, August 1975.) The method prescribed by SSA for arriving at a customary charge where there is a gap is to calculate a conversion factor for the physician from the procedures for which he has customary charges and to apply that conversion factor to a relative value for the particular medical service for which there is insufficient actual charge data.



customary charge for a given procedure for all physicians who had performed in the experiment. An advantage of this solution is that should these fees be greater than the prevailing charges at the 75th percentile, they would never be allowed. And it would reduce complaints as volunteers would be treated identically to physicians whose fees are relatively high when compared to the community.

Still another solution might be to go back to the relation between the customary charge for a procedure by an individual physician and the prevailing charge in the community that existed at the start of the experiment. To illustrate, suppose that at the beginning, for a given doctor and a given procedure, his customary fee was only 60 percent of the prevailing. Then at the end of the experiment, the customary charge of the same doctor for the same procedure would again be set at 60 percent of the prevailing. A serious objection to solving the problem in this way would arise if proportionately more "lower-priced" physicians volunteer for the experiment, expecting a relative upward shift in their position in the community. If it is made clear to them that their relative position will not change, they may not be as willing to volunteer.

③
The procedure to be used should be established before the start of the project. E.g., combine ① and ③.

3.4. Weaknesses and Strengths of the Design

3.4.1 Voluntary Nature of Participation

Voluntary participation in the experimental group effectively precludes randomness in establishing that group, eliminating one essential condition of an ideal theoretical experiment. Some theoreticians would maintain that in these circumstances there can be no experiment. They might point to the Social Science Research Council's (SSRC) definition, which says an experiment involves (1) administration of one or more treatments to a set of units drawn at random from a specified population and (2) measurements to determine how (or how much) some relevant aspect of the experimental group's behavior following treatment differs from like behavior by members of an untreated control group also drawn at random from the same population.^{1/} A study group, set up by the SSRC in 1971 for the President's Science Advisory Committee, to review the state of the art for experimentation in social programs concluded:

Random assignment of study subjects...to experimental groups and control groups is the essential feature of true experiments because it provides the best available assurance that experimental subjects (as a group) are so much like control subjects in regard to ability, motivation, experience, and other relevant variables (including unmeasured ones) that differences observed in their performance following treatment can safely be attributed to the treatment and not to other causes, with a specific degree of precision.^{2/}

1/ Henry W. Riecken and Robert F. Boruch, editors: Social Experimentation -- A Method for Planning and Evaluating Social Intervention, 1974.

2/ Ibid.

The purpose of this discussion is to emphasize the importance of ensuring that bias in selecting participants is rigorously accounted for in subsequent documentation and analysis of data developed in the experiment. Because this experiment starts with the handicap of a biased sample, the design must embody features for coping with the sample as it comes to the experiment.

This requirement is not unique to this study. In social research there are many situations in which randomization is impossible because of legal, ethical or political constraints. In such situations alternative approaches, such as matching, ensure that the composition of the control group generally matches that of the experimental group. The purpose of matching is to maximize comparability of the groups by controlling such exogenous factors by age cohorts and specialty groups. See figure 5 for the matching pattern for this experiment.

The control group in this experiment performs critical functions: It provides information about the effect of exogenous factors arising from unforeseen events occurring during the experiment, such as a major change in the malpractice insurance system, imposition of new governmental controls to curb inflation, statutory changes in the Medicare program, etc. Such events may be expected to influence the "after" measurements of both the experimental and control groups, but they may have a somewhat different impact on their respective performance. The effect of significant variables other than age and specialty will be corrected for statistically by means of covariance analyses, the basic method to be employed in the analysis.

Figure 5. Block pattern for Matching Experimental
and Control Groups

Specialty groups	Age cohorts			
	Years since graduation			
	10	11-20	21-30	30
A. General Practice Family practice General practice				
B. Medical Specialties Allergy Cardiovascular disease Dermatology Endocrinology Gastroenterology Internal medicine Pulmonary disease Rheumatology				
C. Surgical Specialties General surgery Other surgical specialties Ophthalmology Othorhinolaryngology Urology				
D. Psychiatric Medicine Psychiatry Psychoanalysis Psychosomatic medicine				
E. Other Specialties Anesthesiology Diagnostic radiology Pathology Radiology				

The major strength of this experimental design derives from its ability to control all relevant variables except the one that is being investigated. However, the alternate reimbursement system is itself a combination of several incentives (full payment for covered services, fees determined in accordance with a negotiated fee schedule, a modified billing system, etc.). The object of this experiment is not to explain the impact of each of these separate elements on cost containment. To the extent that such inferences are drawn, they will be derived from statistical analysis rather than experimental data.

3.4.2 Objectivity of Documentation and Data Collection

Another major strength of the experiment is that primary data to be used in describing the behavior of the physicians involved will be drawn from the operating records of the experiment's fiscal agent and SSA's fiscal carrier in the Washington metropolitan area. These data and the procedure by which they will be collected are completely objective. They will not be biased by personality-related inputs from experimenters, observers, or data recorders.

Since the essential data will be drawn from the operating records of reimbursement claims filed and paid, they will have a high degree of built-in reliability and self-policing. There will be no gaps in the information required for before-and-after measurements; nor will there be attrition because a participant is unavailable for a post-test measurement. Completing the measurement process might be delayed only due to late filing of claims for reimbursement in the last weeks of the test.

The basic experiment will include no surveys of participating physicians, control group members, or Medicare beneficiaries. However, after the experiment is completed the study team will obtain the perceptions of some participants on aspects of the alternate reimbursement system that appear to have had substantial impact on the experimental findings.



IV. THE PLAN OF ANALYSIS



4.1. Hypotheses About the Effects of the Alternate Reimbursement System

4.1.1 Introduction

The objective of the analysis is to determine with confidence the effects of the alternate reimbursement system on Medicare costs and beneficiary access to care and to make valid comparisons with the existing Medicare system. The starting point is the formulation of assumptions regarding the observable effects that will be produced. For example, we postulate that the level and rate of increase in total costs will be less under the alternate system than under the present system, that access to care will not be adversely affected, and that cost savings will result if expenditures under both Part A and Part B are taken into account.

To list these hypotheses, each statement is written in the terminology of statistics as a pair of hypotheses: a null hypothesis and an alternative hypothesis. If one hypothesis is found to be true, then the other must be false. In the statement of hypotheses, the following concepts and symbols are used:

Z: Total expenditures for covered services under the program as it is now.

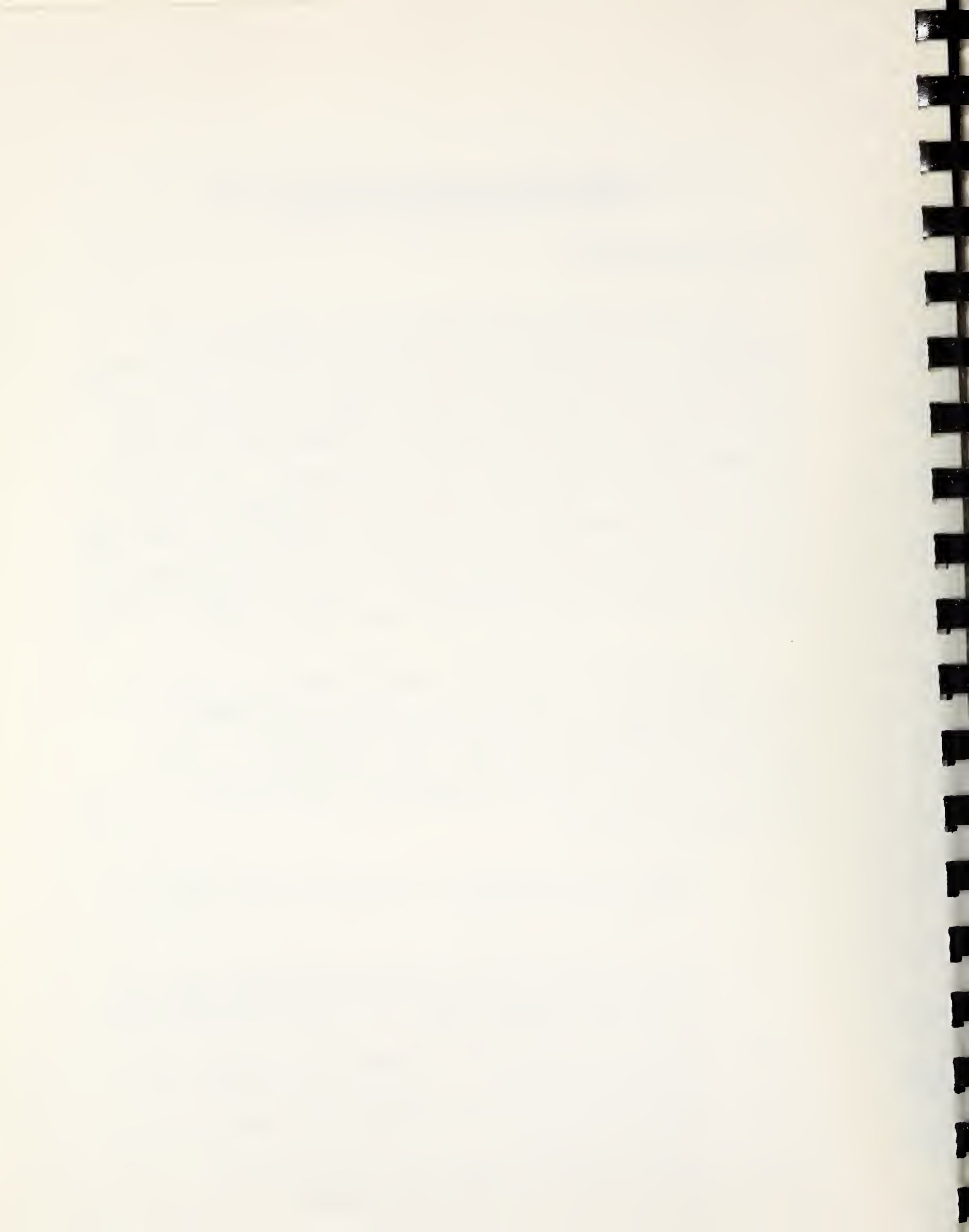
$$Z = X + \lambda(Y-X) + V$$

Z': Total expenditures for covered services under the alternate program, based on a relative value scale, conversion factors, etc.

Y: Total actual physician charges for Medicare Part B covered services.

X: Total allowed physician charges for Medicare Part B covered services.

X': Total physician charges for Medicare Part B services valued under the alternate system.



ℓ: Fractions of disallowed charges for covered services not taken on assignment; i.e., the proportion of disallowed charges that is the beneficiaries' liability.

V: Total claims processing costs for Medicare Part B services.

V': Total claims processing costs for Medicare Part B services under the alternate system.

$$X' = X' + V'$$

A: The part of total allowed physician charges (X) that is charged to beneficiaries and/or third parties; i.e., deductible and coinsurance amounts.

A': The part of total physician charges under the alternate system that is charged to beneficiaries and/or third parties; i.e., deductible and coinsurance.

B: The part of total allowed physician charges (X) that is charged to the Social Security Trust Fund.

$$X = A + B$$

$$Z = A + \ell(Y-X) + (B+V)$$

B': The part of total physician charges under the alternate system that is charged to the Social Security Trust Fund.

$$Z' = A' + (B'+V')$$

C: The part of A actually paid by beneficiaries and/or third parties.

C': The part of A' actually paid by beneficiaries and/or third parties under the alternate system.

D: Bad debts and forgiveness for Medicare Part B services absorbed by physicians. *

D': Bad debts and forgiveness absorbed by the program under the alternate system.

$$Z' = C' + (B'+V'+D')$$

The relevance of these definitions for this study may be seen in the analysis of Medicare costs in the year 1974 shown in table 16. It shows that the Social Security Trust Fund paid out \$31 million for physician services (B), while beneficiaries were liable for another \$16.3 million ($A + \lambda(Y-X)$), which with the addition of \$2.4 million for claims processing (V) makes a total of \$49.7 million in expenditures for services provided under the program (Z).

4.1.2 The Effects of the Alternate Reimbursement System on the Level of Cost Elements

The first major hypothesis is that total costs of Part B will be less under the alternate reimbursement system than under the present system: *

Null hypothesis: $H_n: X' + V' \geq X + \lambda(Y-X) + V$

Alternative hypothesis: $H_a: X' + V' < X + \lambda(Y-X) + V$

This hypothesis has several subsidiary hypotheses. One is that total physician charges for Medicare Part B services paid by the Social Security Administration and the beneficiaries under the alternate system (measured by the experimental group) would be less than total charges for the same services under the present system (measured by the control group):

$H_n: X' \geq X + \lambda(Y-X)$

$H_a: X' < X + \lambda(Y-X)$

Given the design of our experiment, it will be possible to test that basic hypothesis at levels of aggregation lower than entire physician groups. Recall that physicians

Table 16. Costs of Medicare Part B in the District of Columbia Metropolitan Area, 1974

Symbol	Definition	Costs (in millions of dollars)
Z.....	Total expenditure for covered services under the program as it is now	49.7
Y.....	Total actual physician charges for Medicare Part B services	51.3
X.....	Total allowed physician charges for Medicare Part B services	43.9
Y-X.....	Total disallowed physician charges for Medicare Part B services	7.4
ℓ.....	Fraction of disallowed charges not taken on assignment	.456
V.....	Total claims processing costs for Medicare Part B services	2.4
	$Z = x + \ell(Y-X) + V$ $= 43.9 + .456(7.4) + 2.4$ $= 43.9 + 3.4 + 2.4$ $= 49.7$	
A.....	The part of total allowed physician charges that is charged to beneficiaries and/or third parties; i.e., deductible and coinsurance amounts	12.9
B.....	The part of total allowed physician charges that is charged to the Social Security Trust Fund	31.0
	$Z = (A + \ell[Y-X]) + (B+V)$ $= 12.9 + .456(7.4) + 31.0 + 2.4$ $= 12.9 + 3.4 + 31.0 + 2.4$ $= 16.3 + 33.4$ $= 49.7$	

Source: Monthly carrier performance reports for Medical Service of D.C. and Form SSA-1616.



volunteering for the experiment are to be matched with non-volunteering physicians on the basis of age cohort and specialty class. Four age cohorts and 5 specialty classes have been defined, generating 20 age cohort-specialty blocks, all with, hopefully, a positive frequency of physicians who volunteer for the experiment. Matching will assure an equal number of control group physicians in corresponding age cohort-specialty cells. Variables like X' , X , ℓ , and Y could then be measured for blocks or groups of blocks and the hypothesis tested with respect to corresponding blocks.

Another subsidiary hypothesis is that total claims processing costs for Medicare Part B under the negotiated RVS and conversion factors would be less than total claims costs for Medicare Part B as it is now, reflecting the different assignment rates and billing procedures:

$$H_n: V' \geq V$$

$$H_a: V' < V$$

This subsidiary hypothesis can be broken down further. If V_1 = cost to the physician of filing claims, V_2 = the cost to the beneficiary of claims preparation and record keeping, V_3 = cost to SSA, and V_4 = carrier costs for claims processing, we might hypothesize that:

$$H_n: V_1' \geq V_1$$

$$V_2' \geq V_2$$

$$V_3' \geq V_3$$

$$V_4' \geq V_4$$

$$H_a: V_1' < V_1$$

$$V_2' < V_2$$

$$V_3' < V_3$$

$$V_4' < V_4$$

However, only the last hypothesis, that carrier costs for claims processing will be less, will be tested. Implicit in this hypothesis is the belief that the bill-collecting

function undertaken by the fiscal agent will not absorb or cost in excess of the savings. X

A second major hypothesis is that the part of total costs of physician services now charged to beneficiaries would exceed the part of total costs charged to beneficiaries under the alternate reimbursement system. Since all doctors in the experimental group accept assignment, beneficiaries are not liable for disallowed amounts under the alternate system:

$$A + \ell(Y-X) > A' \text{ since } \ell'(Y'-X') = 0$$

The third major hypothesis concerns the liability of the Social Security Trust Fund (S) for 80 percent of the allowed charges and for the administration of the program. We hypothesize that for the same level of utilization, the liability of SSA under the alternate system (the experimental group) would be no greater than its liability for Part B as it is now constituted (the control group):

$$X + \ell(Y-X) + V - [A + \ell(Y-X)] = S = B + V$$

$$X' + V' - A' + D' \leq B + V$$

$$B' + V' + D' \leq B + V$$

This hypotheses recognizes that under the alternate reimbursement system bad debts and forgiveness are absorbed by SSA rather than by the physician.

Our fourth major hypothesis is that the extent of bad debt and forgiveness under Medicare Part B as it now would be the same or exceed the amount of bad debt and forgiveness under the alternate system. In other words, beneficiaries served by doctors in the experiment are just as likely or more likely to pay their bills as Medicare patients of doctors in the control group:

$$\frac{D}{A + \ell(Y-X)} > \frac{D'}{A'}$$

4.1.3 Hypotheses About the Effects of the Alternate Reimbursement Method on the Rate of Change

The prime objective in developing an alternate reimbursement system is cost containment, one aspect of which is controlling the rate of increase in program costs. Therefore, in addition to a comparison of the level of costs for the experimental and control groups over any period of time, the difference in the rate of change between the 2 groups will be investigated. An index based on the Laspeyre or Paasche formula will be used.

To explain these hypotheses more precisely and succinctly, the following notations are used:

- Pit: The physician's fee for the i-th service in period t.
- Pio: The physician's fee for the i-th service in the base period.
- Qit: The number of times the i-th service was performed in period t.
- Qio: The number of times the i-th service was performed in the base period.

Then,

The Laspeyres price index formula:

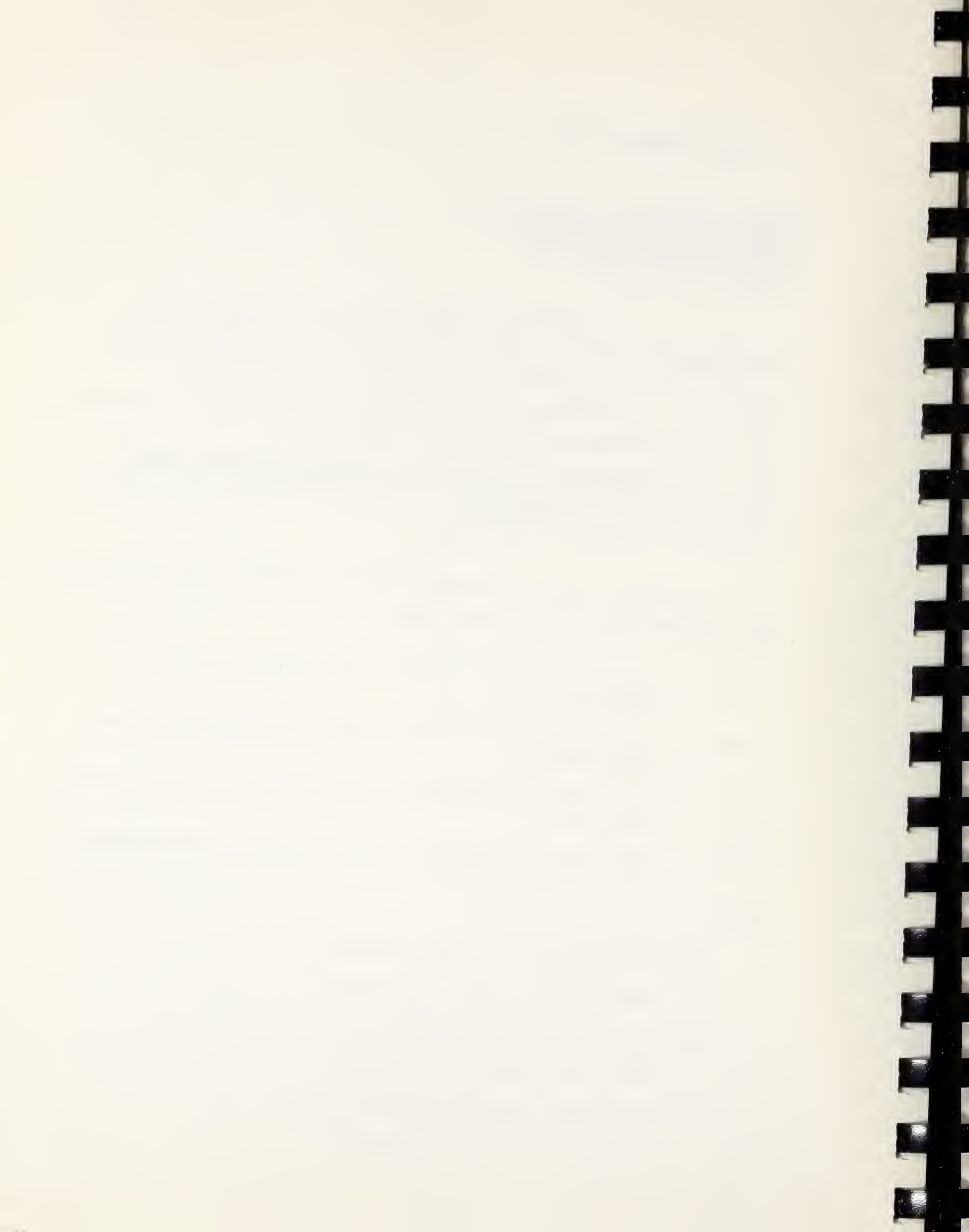
$$LAp = \sum Pit Qio / \sum Pio Qio$$

The Paasche price index formula:

$$PAP = \sum Pit Qit / \sum Pio Qit$$

The Laspeyres quantity index formula:

$$LAq = \sum Qit Pio / \sum Qio Pio$$



The Paasche quantity index formula:^{1/}

$$PA_q = \sum Q_{it} P_{it} / \sum Q_{io} P_{it}.$$

Another major hypothesis regarding cost containment is that the rate of increase in total allowed physician charges under the alternate system would be less than the rate of increase under the present system:

$$H_n: \frac{\sum P_{it}' Q_{it}'}{\sum P_{io}' Q_{io}'} > \frac{\sum P_{it} Q_{it}}{\sum P_{ot} Q_{ot}}$$

$$H_a: \frac{\sum P_{it}' Q_{it}'}{\sum P_{io}' Q_{io}'} < \frac{\sum P_{it} Q_{it}}{\sum P_{io} Q_{io}}$$

These rates of change could then be decomposed into the rates of change in prices or physician fees and the rates of change in quantities or physician services. We hypothesize that, employing the Laspeyres price index formula, physicians' fees based on negotiated RVS and conversion factors would not grow as rapidly under the experiment as physicians' fees under the present method of ceiling and customary-prevailing-reasonable (CPR):

$$H_n = LA_p' \leq LA_p$$

$$H_a = LA_p' > LA_p$$

The hypothesis might also be investigated with the Paasche formula:

$$H_n: PA_p' \leq PA_p$$

$$H_a: PA_p' > PA_p$$

^{1/} In the Paasche formula the base period weights of the Laspeyres formula are replaced by current period weights. In the price formulas, quantities are weights; in the quantity formulas, prices are weights.

The alternate method of physician reimbursement addresses itself primarily to reducing the rate of growth of physicians' fees, containing total program costs of Part B, and achieving cost savings on Part A. It makes no overt attempt to control utilization of physician services. Nevertheless, it might act to raise the level of utilization, through the 100-percent assignment rate, the incentives to substitute ambulatory for inhospital services, and it might have other effects that we do not currently appreciate. For these reasons, we will also explore whether the utilization of physician services rose more rapidly in the experimental group than in the control group:

Hn: $LAq' \leq LAq$

Ha: $LAq' > LAq$, and

Hn: $PAq' \leq PAq$

Ha: $PAq' > PAq$

4.1.3 Hypotheses about the Effect of the Alternate Reimbursement Method on Access to Physicians by Medicare Part B Enrollees

Any critical assessment of the impact of the alternate system must take into account the willingness of physicians to participate in the program, as evidenced by the number of doctors and the amount of services they render Medicare beneficiaries.

To study the effect on access to care, let:

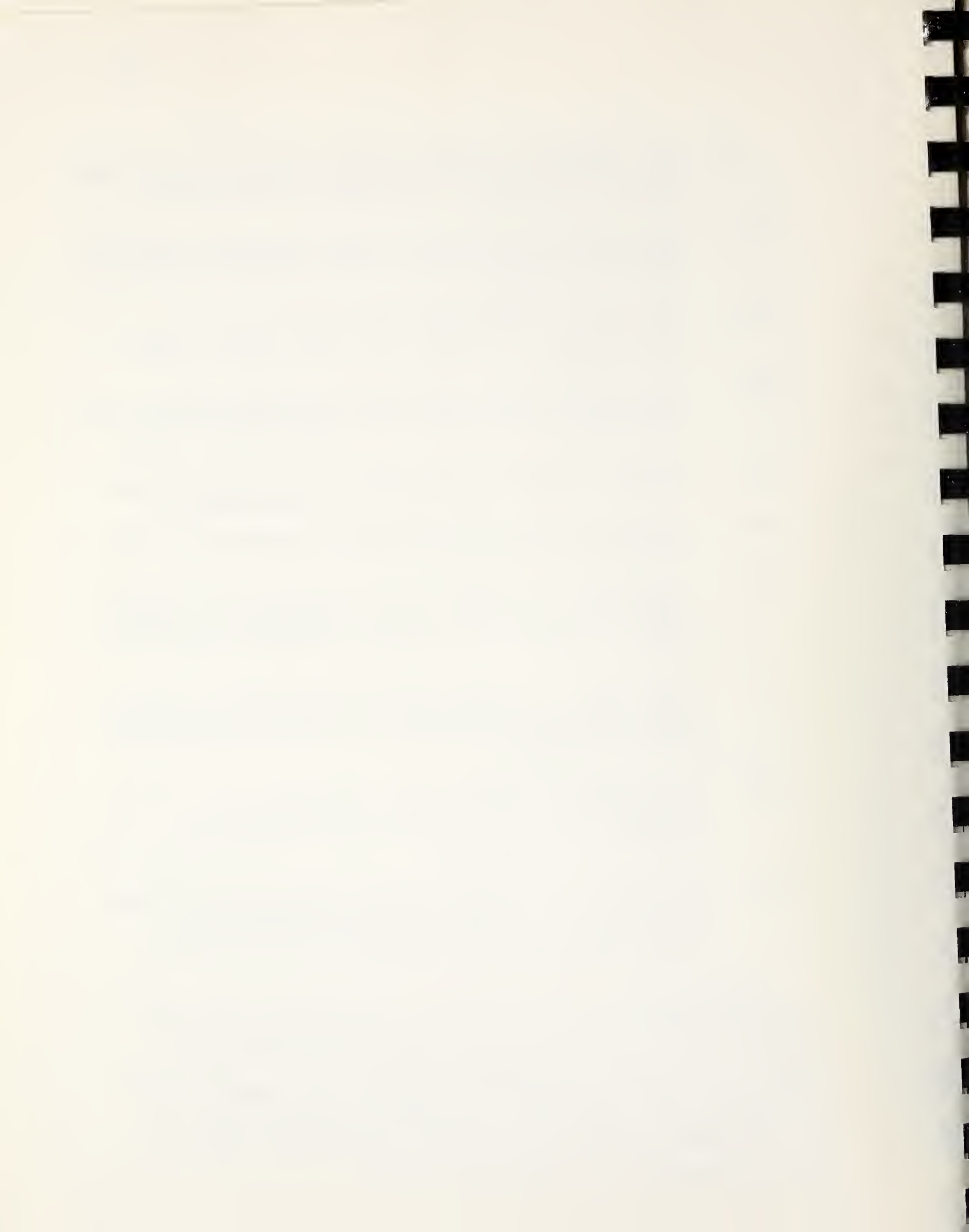
PH: The number of physicians in the control group.

PH': The number of physicians in the experiment.



- S: The number of covered services rendered to Medicare Part B enrollees by physicians in the control group in a period.
- S': The number of covered services rendered to Medicare Part B enrollees by physicians in the experimental group in a period.
- BE: The number of Medicare Part B enrollees who use the services of physicians in the control group in a period.
- BE': The number of Medicare Part B enrollees who use the services of physicians in the experimental group in a period.
- [j]: A set of physician services that potentially lend themselves to splitting up or "fractionation."
- [k]: A set of physician services that potentially lend themselves to "overutilization."
- Sj: The number of covered services potentially lending themselves to "fractionation" rendered to Medicare Part B enrollees by control group physicians in a period.
- S'j: The number of covered services potentially lending themselves to "fractionation" rendered to Medicare Part B enrollees by physicians in the experimental group in a period.
- Sk: The number of covered services potentially lending themselves to "overutilization" rendered to Medicare Part B enrollees by the control group physicians in a period.
- S'k: The number of covered services potentially lending themselves to "overutilization" rendered to Medicare Part B enrollees by physicians in the experimental group in a period.

The hypotheses that follow will be stated in the most aggregative way, that is, with respect to all physicians, all services, all beneficiaries. Naturally, one may wish to test more particular hypotheses as well. For example, did relatively young physicians in a given specialty class in the experiment render more or fewer services per capita than their counterparts in the control group?



It is important to keep in mind that some of the individuals who are counted among the [BE]'s, beneficiaries seeing control group physicians, may also be counted among the [BE']'s, those seeing experiment physicians.

Regarding "fractionation" and "overutilization", we will have to consult with physicians or other experts to establish lists of services where these irregularities could exist.

We are going to use an identity to help us organize our hypotheses: services per physician equal to product of services per beneficiary and beneficiaries per physician. Thus, the identity distinguishes among 3 aspects of access to physicians. We will test hypotheses with respect to all three:

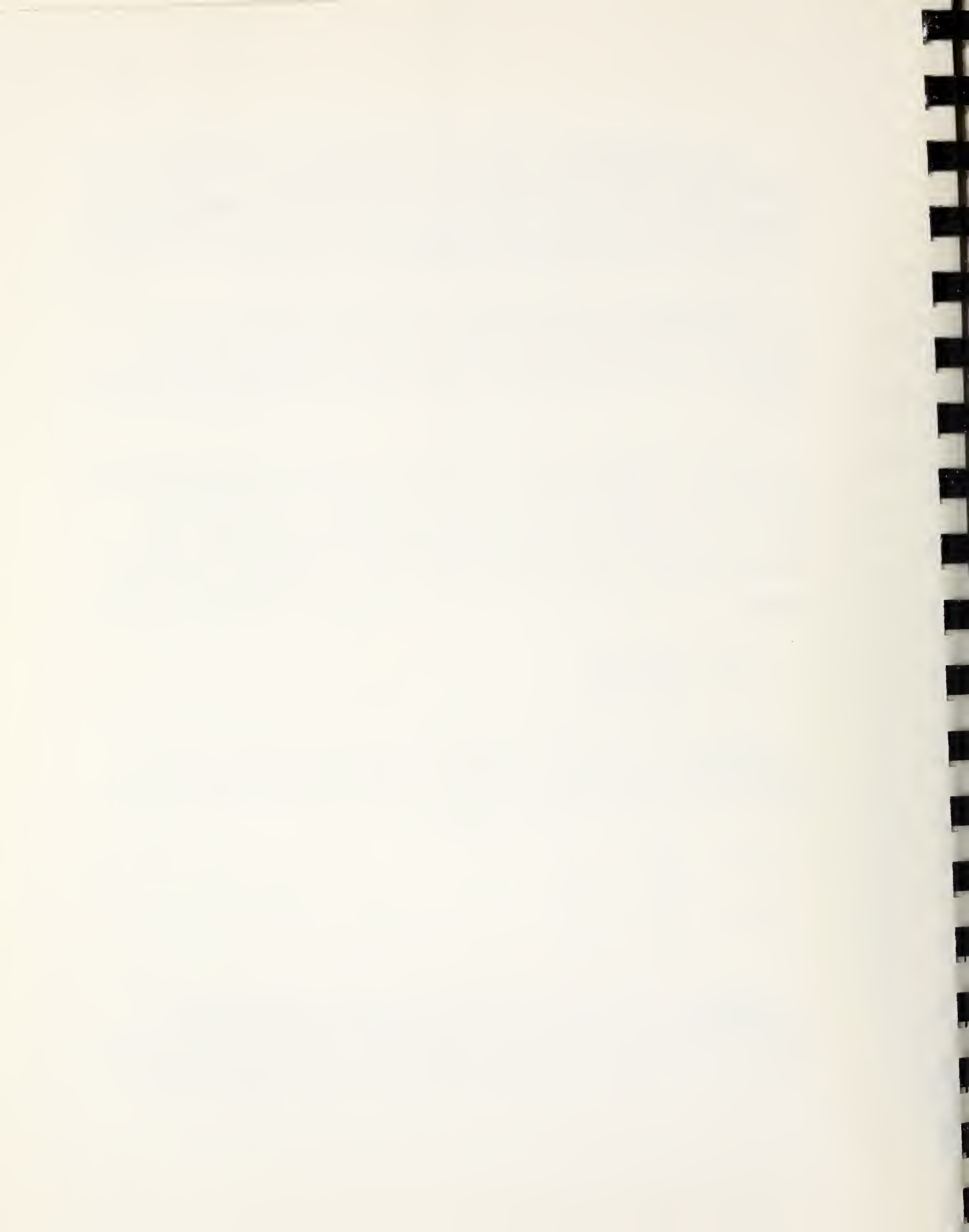
$$\frac{S}{PH} = \left(\frac{S}{BE} \right) \left(\frac{BE}{PH} \right)$$

First, the number of Medicare Part B covered services rendered per physician will not be less for the experimental group than for the control group:

$$H_n: \frac{S'}{PH'} \leq \frac{S}{PH}$$

$$H_a: \frac{S'}{PH'} > \frac{S}{PH}$$

Second, the number of covered services per Medicare Part B enrollee who utilizes physicians services will not be less for the experimental group than for the control group:



$$H_n: \frac{S'}{BE'} > \frac{S}{BE}$$

$$H_a: \frac{S'}{BE'} < \frac{S}{BE}$$

Third, the number of enrollees who utilized physician services per physician will not be less for the experimental group than for the control group:

$$H_n: \frac{BE'}{PH'} > \frac{BE}{PH}$$

$$H_a: \frac{BE'}{PH'} < \frac{BE}{PH}$$

The 3 tests wish to substantiate that the alternate reimbursement system has not worsened access to physicians and may have improved it. A worsening in access to physicians comes about certainly if services per beneficiary are lower for the experimental group than in the control group, or if beneficiaries per physician are lower for the experimental group, all other things being equal. If both ratios are lower for the experimental group, then services per physician, their product, must be lower in the experiment.

Fourth, the amount of splitting up of services into components ("fractionation") per physician will be no higher in the experimental group than in the control group:

$$H_n: \frac{S'_j}{PH'} \leq \frac{S_j}{PH}$$

$$H_a: \frac{S'_j}{PH'} > \frac{S_j}{PH}$$

Fifth, the amount of unnecessary services ("overutilization") per physician will be no higher in the experimental group than in the control group:

$$H_n: \frac{S'_k}{PH'} \leq \frac{S_k}{PH}$$

$$H_a: \frac{S'_k}{PH'} > \frac{S_k}{PH}$$

Actually, these hypotheses could be stated more simply, as $S'_j \leq S_j$, $S'_k \leq S_k$, etc., because the denominators, the number of physicians in the two groups, will be equal.

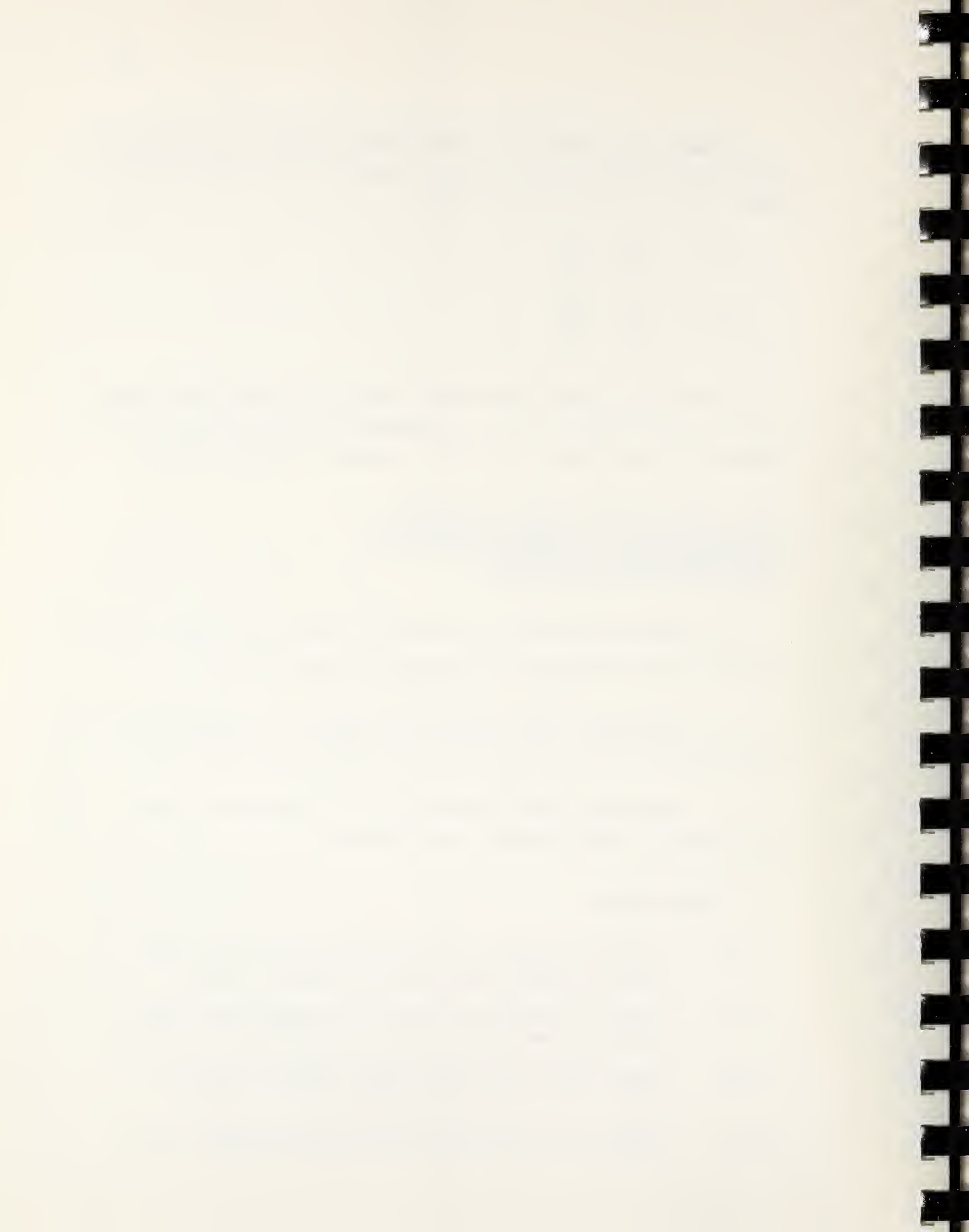
4.1.5 Hypotheses about the Effect of the Alternate System on Patterns of Utilization of Ambulatory Care and Hospitalization

To effect reductions in hospital admissions and length of stay, the alternate reimbursement system would:

1. Encourage some ambulatory surgery by establishing a differential in its favor in the reimbursement formula.
2. Encourage home health care by reimbursing the physician for home health care planning.

Definitions

- BE: Number of Medicare Part B enrollees who used physician services from the control group.
- BE': Number of Medicare Part B enrollees who used physician services from the experimental group.
- HBE: Those [BE]'s who have been hospitalized in a period by physicians in the control group.
- HBE': Those [BE']'s who have been hospitalized in a period by physicians in the experimental group.



- HD: Total number of days spent in the hospital in a period by enrollees seeing control group physicians, the [BE]'s.
- HD': Total number of days spent in a hospital in a period by enrollees seeing physicians in the experimental group, [BE']'s.
- AM: Number of hospital admissions in a period by control group physicians.
- AM': Number of hospital admissions in a period by physicians in the experimental group.
- APV: Total number of ambulatory (home, office, etc.) physician visits in a period by enrollees seeing physicians in the control group [BE]'s.
- APV': Total number of ambulatory physician visits in a period by enrollees seeing physicians in the experimental group, [BE']'s.

Our hypotheses about the effects of the alternate system on patterns of utilization are:

First, the proportion of beneficiaries with stays in the hospital will be lower for the experimental group than for the control group:

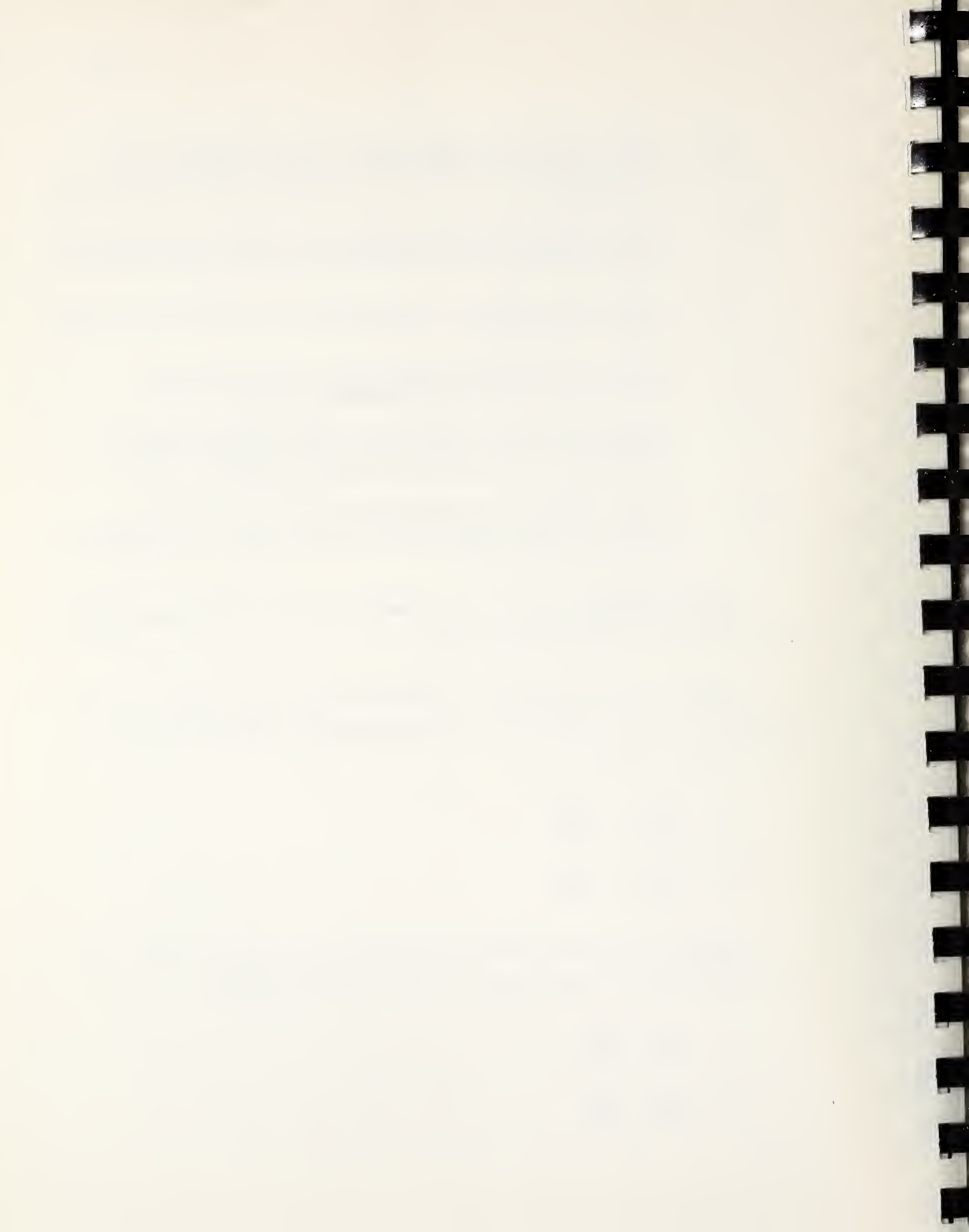
$$H_n: \frac{HBE'}{BE'} > \frac{HBE}{BE}$$

$$H_a: \frac{HBE'}{BE'} < \frac{HBE}{BE}$$

Second, hospital stays per beneficiary will be lower for the experimental group than for the control group:

$$H_n: \frac{HD'}{HE'} > \frac{HD}{BE}$$

$$H_a: \frac{HD'}{BE'} < \frac{HD}{BE}$$



Third, admissions per beneficiary will be lower for the experimental group than for the control group:

$$H_n: \frac{AD'}{BE'} > \frac{AD}{BE}$$

$$H_a: \frac{AD'}{BE'} < \frac{AD}{BE}$$

Fourth, hospital days per admission and per patient will be lower for the experimental group than for the control group:

$$H_n: \frac{HD'}{AD'} > \frac{HD}{AD}$$

$$H_a: \frac{HD'}{AD'} < \frac{HD}{AD}$$

$$\frac{HD'}{HBE'} > \frac{HD}{HBE}$$

$$\frac{HD'}{HBE'} < \frac{HD}{HBE}$$

Fifth, ambulatory physician visits per beneficiary will be higher in the experiment than in the control group:

$$H_n: \frac{APV'}{BE'} < \frac{APV}{BE}$$

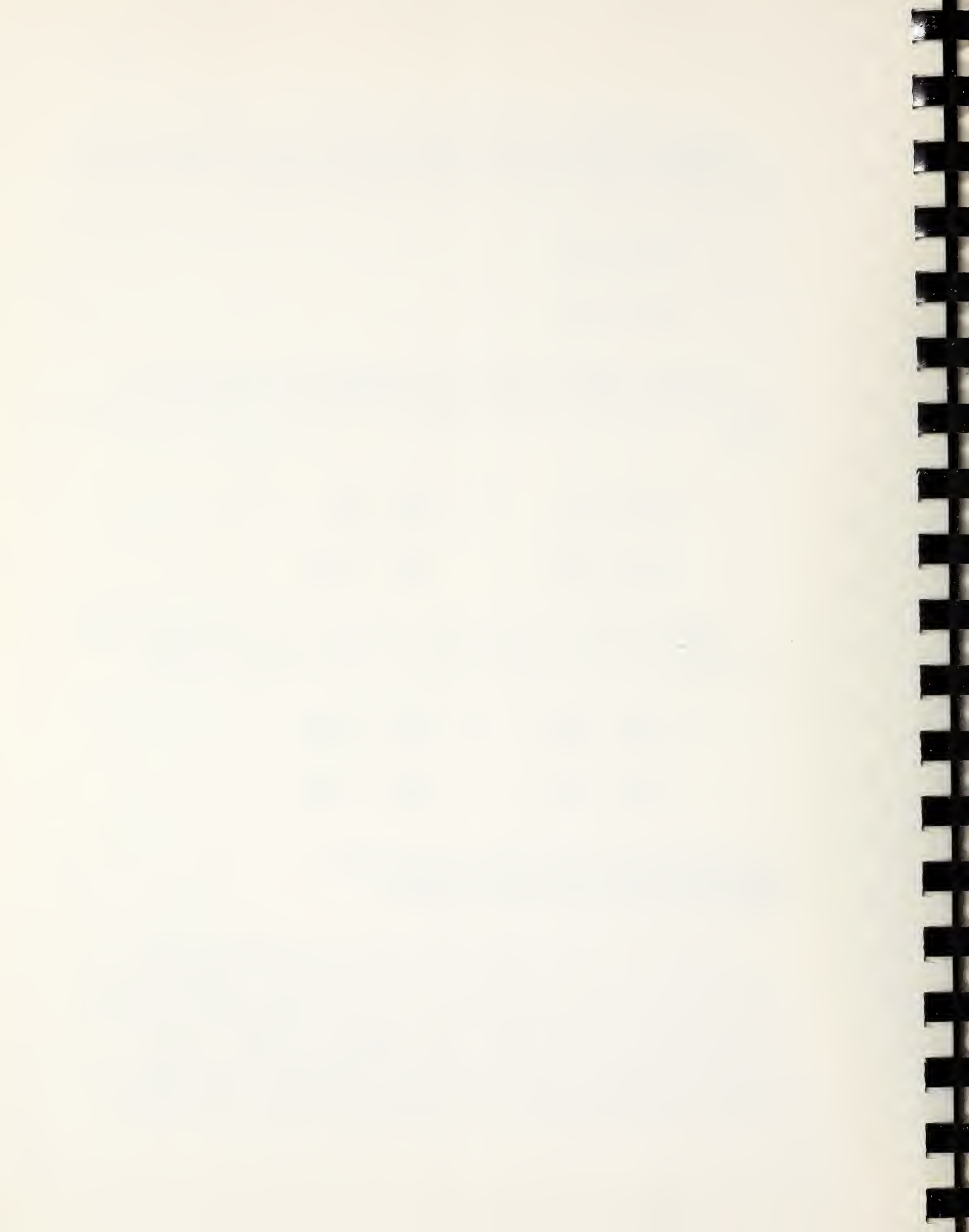
$$H_a: \frac{APV'}{BE'} > \frac{APV}{BE}$$

$$\frac{ALT'}{BE'} < \frac{ALT}{BE}$$

$$\frac{ALT'}{BE'} > \frac{ALT}{BE}$$

4.1.6 A Modification of the Hypotheses about the Effect of the Alternate Method on the Total Costs of Part B

In view of the hypotheses about the effects of the alternate system on patterns of utilization, a modification of the hypotheses regarding the level of costs and the rate of change may be in order. The reason is this: If the alternate system indeed succeeds in reducing the number of hospital admissions and the lengths of stays in a period,



these savings in Part A should be credited to the alternate reimbursement system. After all, it would not be surprising if total physician charges by the experimental group were greater than total charges by the control group. The alternate method could reasonably be expected to boost demand for physician services:

1. One-hundred percent assignment -- agreed to by all physicians volunteering for the experiment -- should tend to raise utilization because physicians, in forgoing the disallowed charges they might have collected under nonassignment, are, so to speak, agreeing to offer services at reduced prices; this might influence beneficiaries and physicians to increase utilization.

2. The alternate system may cause not only the performance of some physician services to be switched from in-hospital to ambulatory places of services, with no increase in overall demand for physician services, but also may result in an actual increase in demand for ambulatory physician services.

Let us define SV as the saving on Part A covered charges that occurred on account of features introduced into the alternate reimbursement system. The first group of hypotheses that should then be restated is as follows:

$$H_n: (X' + V') - SV \geq X + \ell(Y - X) + V$$

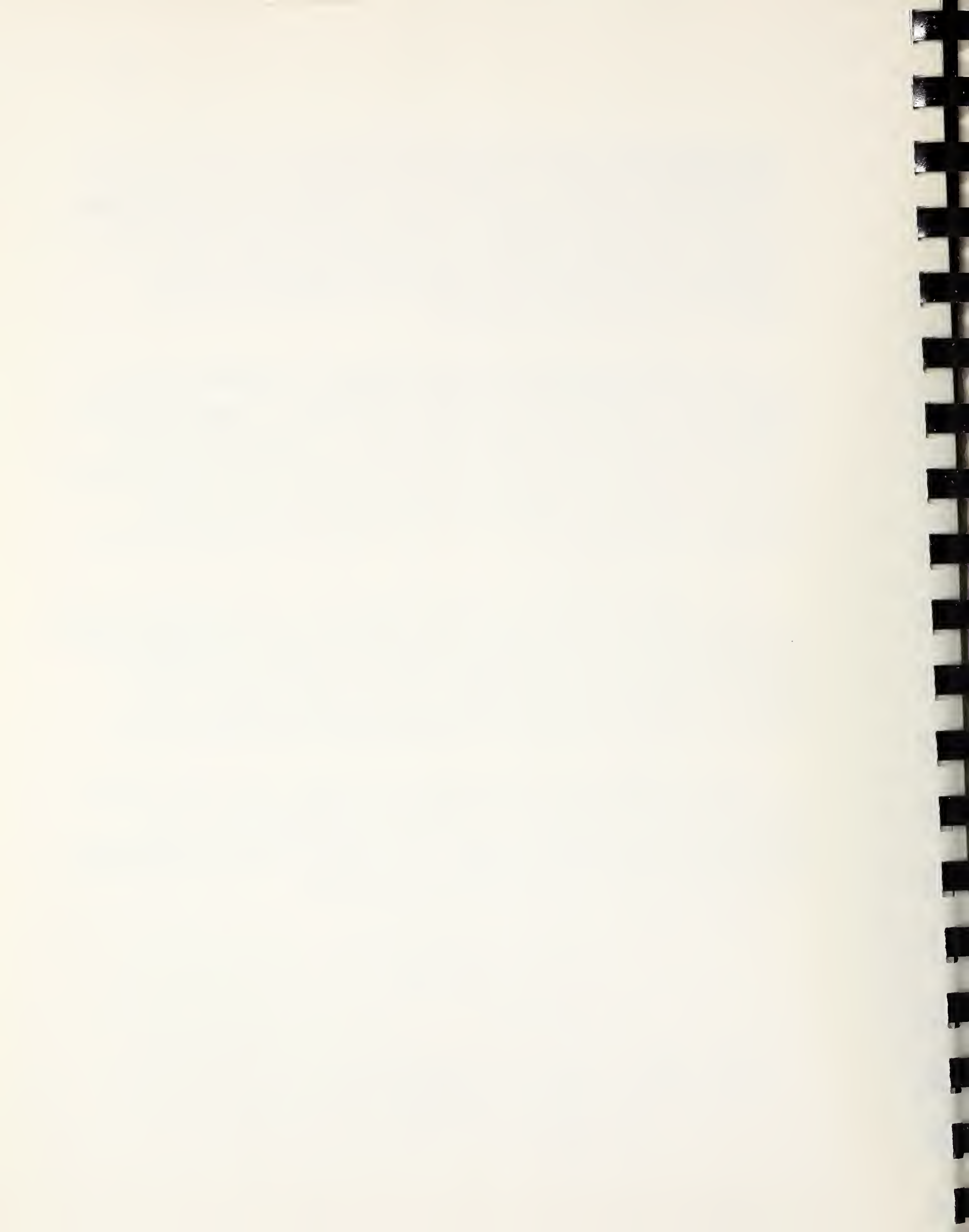
$$X' - SV \geq X + \ell(Y - X)$$

$$X' - SV \geq X$$

$$H_a: (X' + V') - SV < X + \ell(Y - X) + V$$

$$X' - SV < X + \ell(Y - X)$$

$$X' - SV < X$$



That is to say, the total costs of Part B minus the savings in Part A, as well as total physicians' charges taking into account Part A savings, will be less under the alternate system than the present system.



4.2 Data Sources and Data Bank

4.2.1 Introduction

Data elements are generated from requests for physician services rendered to Medicare patients. Claims forms will be filed and processed by the special fiscal agent, the Part B carrier and the Part A intermediary. Other data elements deal with the personal characteristics of the physician.

Statistics from a variety of sources will flow into a specially created data bank, whose resources will be at the disposal of the researchers, enabling them to test hypotheses and to report on the results of the experiment. A graphic presentation of the data sources, data flow and data bank appears in figure 6.

4.2.2 Data Sources

The unit of observation is the physician. From the target population, numbering approximately 1,500, some physicians will volunteer for reimbursement under the alternate system, making up the experimental group. Others will be selected to serve as members of a control group. The 2 groups of physicians and their Medicare patients will be observed during the period of the study. The practices of these physicians will undoubtedly undergo changes during the life of the experiment, and this fact is recognized in the plan of analysis.



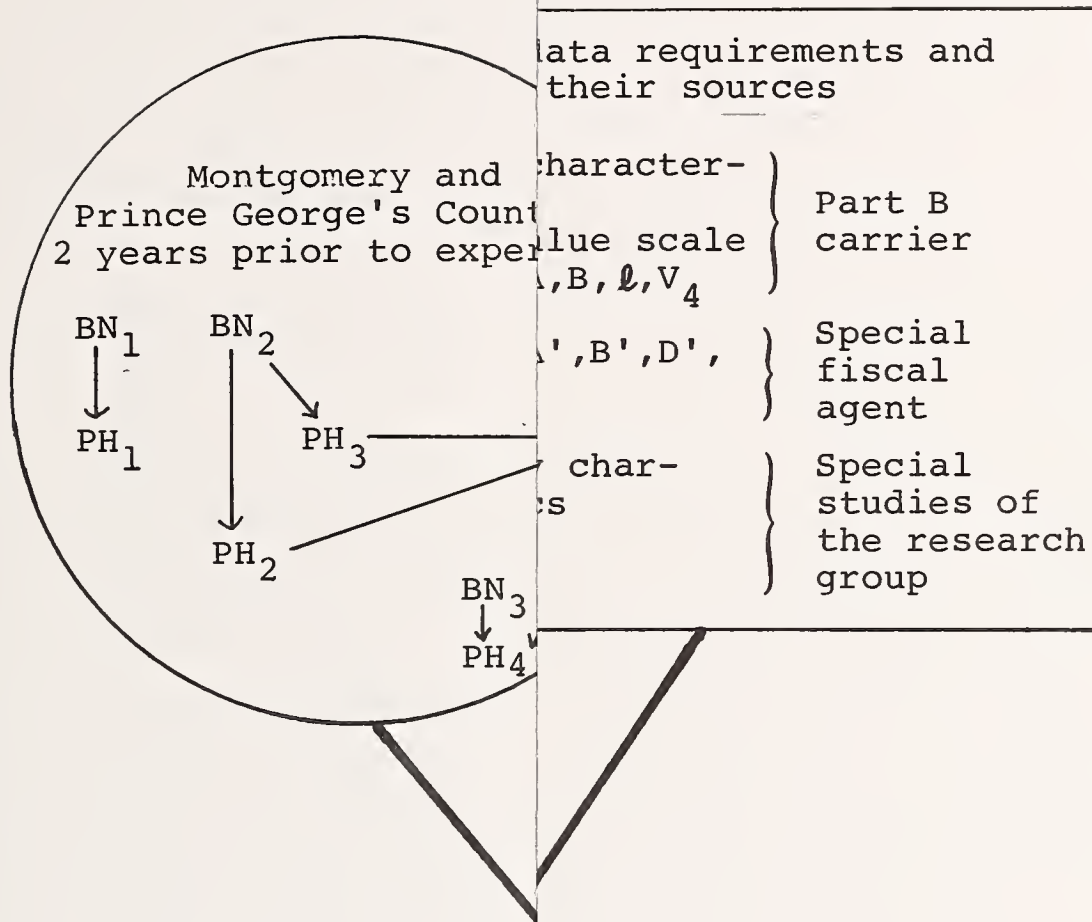
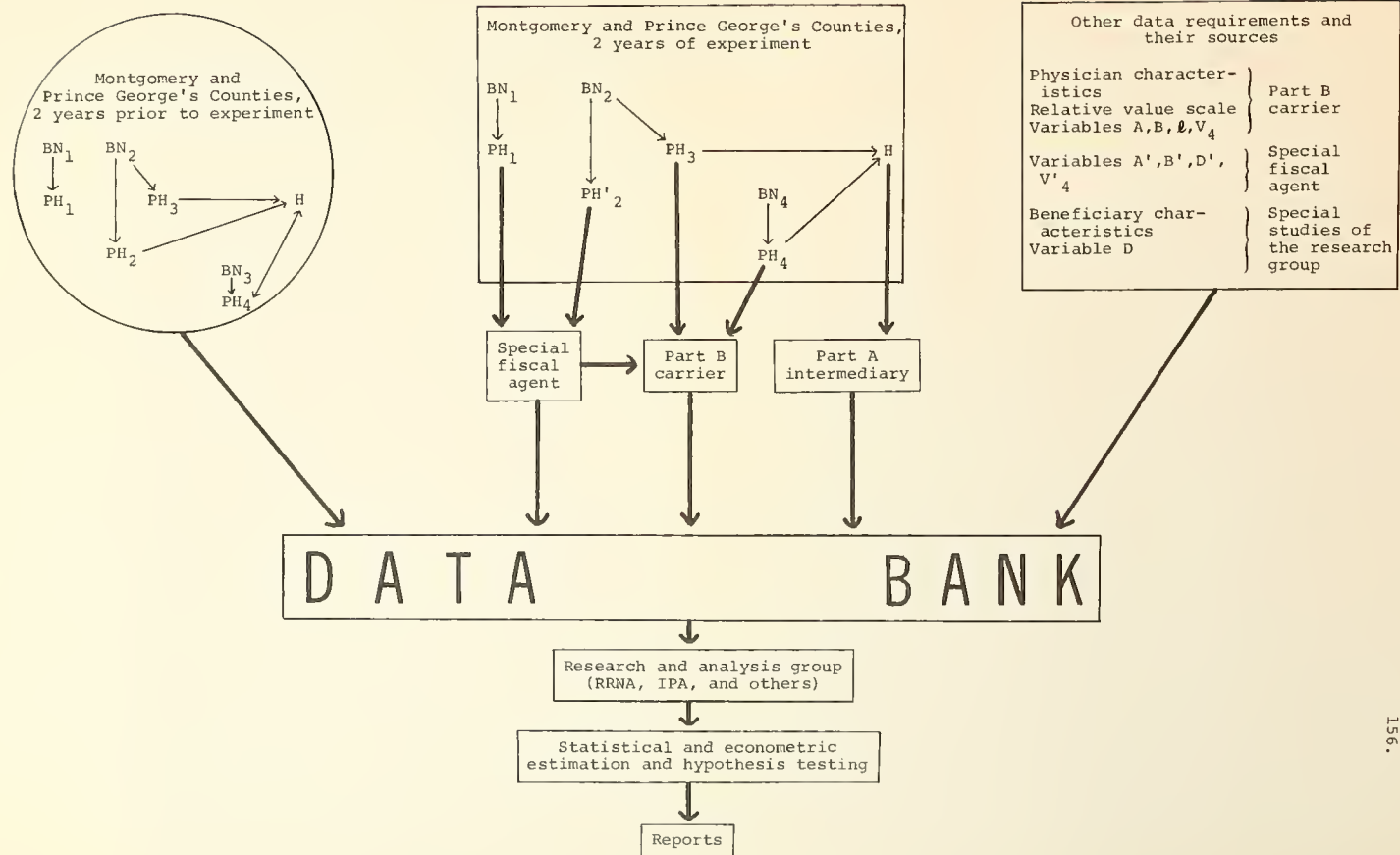


Figure 6. Design of Data Sources and Flow



Claims Information

The use of physicians' services by a Medicare beneficiary gives rise to requests for payments, reported on Form 1490, the most important data source. This form contains a variety of information about both beneficiaries and physicians and the charges for services rendered:

- . Name of patient
- . Health insurance claim number
- . Sex
- . Patient's mailing address
- . If complementary insurance or state medical assistance, name of insuring organization or state agency
- . Policy or medical assistance number
- . Date of service
- . Place of service
- . Type of procedure
- . Actual charge for each procedure
- . Allowed charge or allowed percent of total charge
- . Address of physician
- . Physician code
- . Assignment or not

When these forms are screened, whether by the special fiscal agent for the volunteer physicians or by the Medicare Part B carrier for the control group, they will show, in addition, allowed charges. For the experimental group, actual and allowed charges will not differ if the physicians abide by the rules of the experiment. But for doctors in the control group, allowed charges will be an additional datum.

A major data requirement will be a summary of the Medicare experience 2 years prior to the experiment for doctors in both the experimental and control groups. The source of these data will be the Medicare Part B carrier for the Washington metropolitan area, Medical Service of D.C. The summaries will derive from claims data. Records and files of the pre-experiment experience will have to be retrieved from storage and may need editing to be made congruent with the records and files based on the current experience.

The hypotheses concerning the effect of the new reimbursement method on reduced hospitalization and more intensive utilization of ambulatory care make it necessary to collect data about hospitalization episodes from Medicare Part A. Inhospital physician services on Form 1490 will signal a hospital admission and stay. Hospitalization data will reach the data bank in 2 steps, whether it is the pre-experiment or the experiment experience: (1) a summary of number of services rendered for each physician, the beneficiaries to whom they were rendered, and the places where they were rendered; (2) date of admission, date of discharge, total charges and diagnoses for all beneficiaries who have received inhospital physician services.

Aggregate variables such as the portion of allowed physician charges that is the liability of the Social Security Trust Fund (B and B'), the part that is the obligation of the beneficiary (A and A'), the fraction of disallowed charges not taken on assignment (L), and the amount of bad debts (D') will be available from information on the claims form processed by the fiscal agent and the Part B carrier.

Only D, bad debts and forgiveness under the present Medicare Part B system, is a datum that would not be available without a special effort to obtain it. A sample survey of Medicare beneficiaries might be conducted, although it must be recognized that the reliability of responses concerning unpaid bills makes the value of this technique for this purpose questionable. A survey of doctors is also possible, although here too the respondent may be reluctant to provide information.

Physician Characteristics

While a large number of our hypotheses can be tested on the basis of claims data alone, some of them cannot be properly tested without supplementary information about physicians, such as:

- . Zip code address of physician's office
- . Type of practice
- . Years since graduation from medical school
- . Age
- . Birthplace
- . Country of medical school for each physician
- . Specialty

Knowledge of select individual physician characteristics will allow us to control some variables in order to better measure the effects of others. (This point will be discussed further in the succeeding section on analytical methods.) The information should be available from the carrier or the medical societies, but if not, it could be purchased from a firm like Fisher-Stevens, Inc., of Clifton, New Jersey, which acquires such data from the American Medical Association precisely for the purpose of marketing them.

Beneficiary Characteristics

Should we require information about individual beneficiaries, we will seek it from the Part B claim. The following items are available on Form 1490:

- . Name of patient
- . Health insurance claim number
- . Sex
- . Mailing address, including zip code
- . Name and address of complementary insuring organization or state agency
- . Policy or medical assistance number

The zip codes are our link to the census of population, which would furnish us with such significant information as the median income by census tract, which can serve as proxy for beneficiary income.

4.2.3 Data Sources and Hypothesis Testing

The enumerated sources are sufficient to test all of our hypotheses: The information on Part B claims links patient and physician services performed, identified by procedure, date and place of service, physician fees, both actual and allowed, and whether the patient's bill has been accepted on assignment; the information on Part A claims will link patient and provider, if not patient, provider and physician, giving dates of admission and discharge, admission and discharge diagnoses and charges for the hospital stay.

Variables like liabilities of the beneficiary (A), liabilities of Social Security Trust Fund (B), fraction of disallowed charges not accepted on assignment (2), and

carrier costs for claims processing (V_4), and for the experimental group, counterparts like A' , B' , and V'_4 , should be available from the Part B carrier and the fiscal agent simply by aggregating over the 2 groups of physicians. V'_4 will be a datum generated by the operation of the fiscal agent; V_4 , the claims processing cost for control group, will have to be estimated by somehow scaling down appropriately the area-wide costs of the Part B carrier.

D' would also be a datum generated by the fiscal agent; however, D , bad debts of the control group physicians, can be discovered only through a special attempt. This may mean a special study directed at the control group. If it is not advisable, given the design of the experiment, to conduct sample surveys, a search for studies on bad debts and forgiveness will be instituted; whatever can be derived from these might be applied to the experience of the control group physicians.^{1/}

Sobaski

Lastly, it ought to be possible to estimate SV , the savings on Part A. The method might be to take the average cost of a day in the hospital in the area, deduct from it any costs incurred in bringing about the substitution of one place of service for another, and multiply the net figure by the estimated number of hospital days saved.

4.2.4 The Data Bank

A special data bank will be established to facilitate data handling and analysis. It will reserve data from the

^{1/} The Office of Research and Statistics attempted to investigate forgiveness of the deductible and 20 percent coinsurance in 1971, "piggy-backing" a special set of questions on the monthly Current Medicare Survey interviews. The effort did not yield useful results because the respondents were confused about Medicare billing and payment practices and felt the questions challenged

Part B carrier, the Part A intermediary, the experiment's fiscal agent and other data sources. Four or more primary files will have to be created: (1) a claims file; (2) a hospitalization file; (3) a physician file; and (4) other files, such as files on beneficiaries and relative values of procedures.

The probable sizes of these files are a matter of conjecture until the number of volunteer physicians is known. But if it is assumed that 200 physicians volunteer and are then matched with 200 more from those who do not volunteer, and that the average number of claims per physician per annum is 100, the claims file would eventually contain some 160,000 records (400 physicians x 100 claims x 4 years of observation, 2 pre-experiment and 2 experiment.)

The hospitalization file should contain far fewer records. There are close to 60,000 persons 65 years and over in Montgomery and Prince Georges Counties; nationally, about 1 in 5 of the aged have one or more hospital stays in the course of a year; there are, in round numbers, 2,000 doctors in these 2 counties. Therefore, there are on the average perhaps 6 hospital admissions per physician per year. ($60,000 \div 5 = 12,000$; $12,000 \div 2,000 = 6$). Two groups of 200 doctors each might be associated with 2,400 or 2,500 hospital admissions per year. Four years of observation result in some 10,000 cases of hospitalization.

The physician and other files ought to be small in relation to these 2 files. For the physician file, we have assumed that 400 doctors are involved; for each physician, perhaps a dozen items of data will be sought. These have been described elsewhere.

their independence. Moreover, ORS itself decided that its method of approach to this question was too indirect.

The relational processes among the various files will have to be specified. They are as much a component of the data bank as the files themselves. For example, the carrier assigns a unique control number in the Part B Model System to all new claims received; the control program creates and maintains a control master record for each claim received. Control numbers like these could be key to the relational processes. Form 1490 carries both a physician I.D. number (physician or supplier code) and a beneficiary I.D. number (health insurance claim number). Using the former, the physician characteristics file would be able to control the claims file. If the hospitalization file also carries physician I.D. numbers, the physician file could control it as well; otherwise, the physician file, the claims file and the dates for each service in this file, together, would be the link to the hospital file.

While the pre-experiment data and various files have to be extracted or established only once, the experimental data will have to be added to periodically throughout the 2 years of the experiment. Exactly how these data are added to or "replaced" will have to be considered carefully in order to keep costs at a minimum. Costs will depend also on the condition of the basic files from which new claims data are extracted.

4.3 Analytical Methods

4.3.1 Introduction

Covariance analysis will be our basic method of analysis. It was developed to correct statistically for the effects of uncontrolled variables that could not be properly standardized between classes, like physicians in the experimental group and physicians in the control group. While major reliance will be on covariance analysis, employing ordinary least-squares regression results, the calculation alone of various totals

X' versus $X + \lambda(Y-X)$,
 A' versus $A + \lambda(Y-X)$, etc.

should provide evidence either supporting or casting doubt upon our hypotheses.

We will not hesitate to use other methods that could throw light on our hypotheses, particularly on variants or aspects of them. A few of these alternative methods are the contingency table method using the χ^2 distribution; the test for the equality of means; and the test for the equality of means with observations paired.

4.3.2 Covariance Analysis

Suppose we have sample data Y_{ij} , $i = 1, \dots, p$; $j = 1, \dots, m$; where p denotes the number of classes and m , the number of

observations per class. The data might refer to the number of Medicare Part B covered services (Y_{ij}) rendered in a period by physicians in 2 matching groups ($p = 2$) of 200 physicians each ($m = 200$). The class means, \bar{Y}_i , may then be computed. The basic question is whether these sample means indicate a significant variation in the Y variable between classes. The variation observed in Y within classes is an indicator of the inherent stochastic component in Y ; thus it can serve as a base against which the variation of the class means can be assessed.

The total variation of Y is equal to the variation between classes and the variation within classes:

$$\sum_{ij} (Y_{ij} - \bar{Y})^2 = \sum_i m(\bar{Y}_i - \bar{Y})^2 + \sum_{ij} (Y_{ij} - \bar{Y}_i)^2$$

where

$$\bar{Y} = \frac{1}{mp} \sum_{ij} Y_{ij}$$

is the overall mean, and the F test is appropriate for the significance of the variations between classes.^{1/}

The validity of this F test depends among other things upon the use of the within-class sum of squares as an indicator of the inherent stochastic component of Y against which significant effects are to be established. Suppose, however, that Y is affected by other variables, which are not controlled

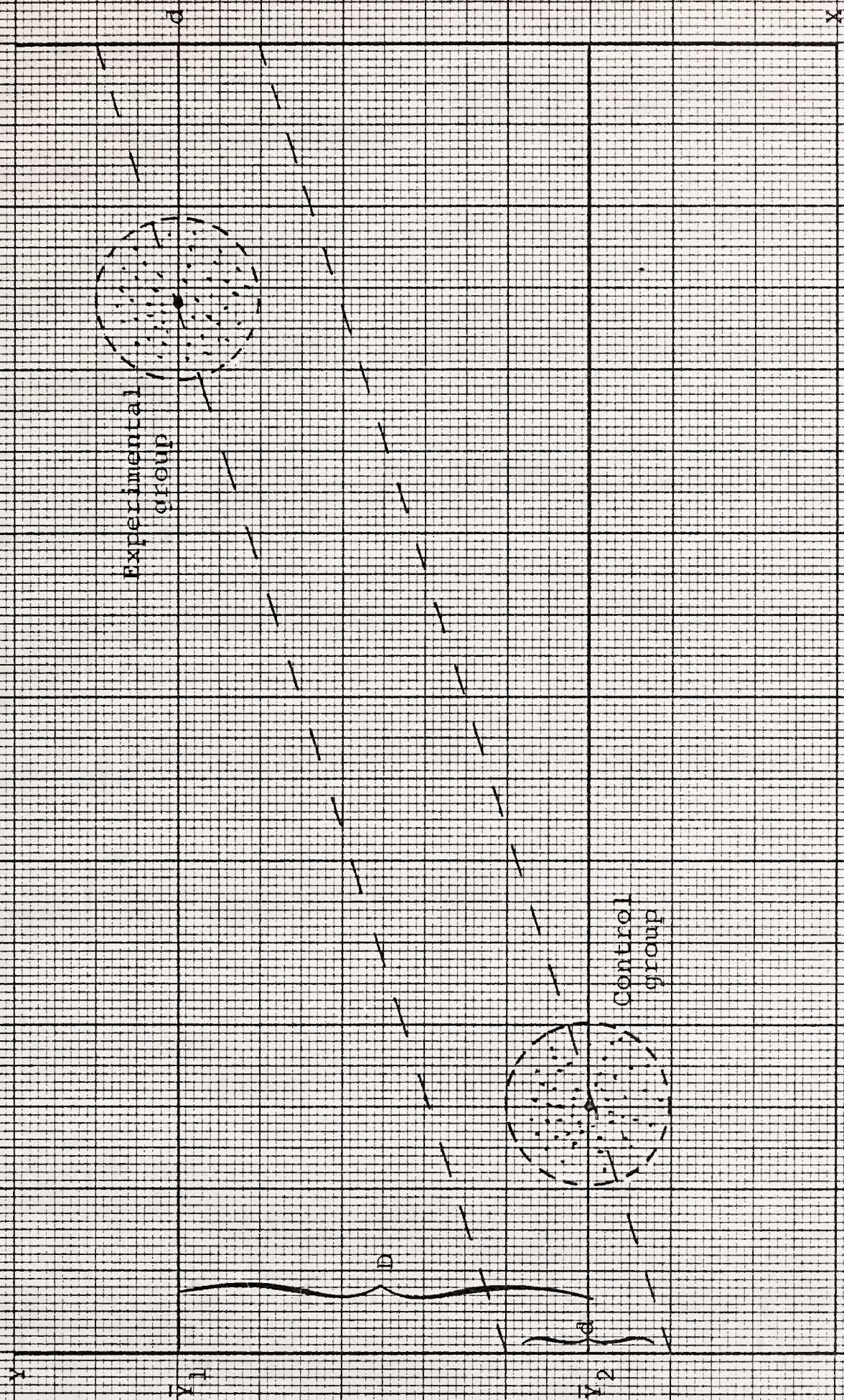
$$F = \frac{\frac{1}{p-1} \sum_i m(\bar{Y}_i - \bar{Y})^2}{\frac{1}{p(m-1)} \sum_{ij} (Y_{ij} - \bar{Y}_i)^2}$$



CH

20 pt

Figure 7. Theoretical Distribution of X and Y in Control Group
and Experimental Group of Physicians





within classes; for example, doctors within both groups may differ greatly among themselves in the number of years that have passed since graduation from medical school or in specialty or in the country where they received their medical education. In such cases, the simple within-class sum of squares will be an overestimate of the stochastic component in Y; also, the differences between class means will now reflect not only any class effect but also the effect of any differences in the values assumed by the uncontrolled variables in different classes. The problem is illustrated in figure 7 for the case of one uncontrolled variable, X, and 2 classes. The dots indicate the 2 scatters and the parallel broken lines the common regression slope of Y on X. In the example, the experimental group of doctors (class 1) have experienced generally higher values of X than the control group doctors (class 2). Here, the difference between the 2 class means, D, overestimates the class effect. Had both physician groups experienced the same values of X, the scatters would lie one directly below the other and the difference between the 2 class means would approximate the vertical distance between the parallel regression lines. When we match the 2 physician groups by age and specialty (in other words, X is assumed to be either age or specialty), the scatter of points for the control group will lie directly below the scatter of points for the experimental group. The class effect is estimated simply by the difference between the regression intercepts.

We can use covariance analysis (1) to test differences in intercepts (slopes assumed constant for all classes) and measure the class effect on the level of costs; (2) to test differences in slopes between classes and measure class effects on the rate of change; (3) to test differences in the complete relationship between classes, ignoring the



distinction between intercepts and slope and considering their relationship as a whole.^{1/}

4.3.3 An Illustration

Let us define 2 variables, AC and SP. If it is 10 years or less since graduation from medical school, AC for a physician = 0; if it is more than 10 years since graduation from medical school, AC for a physician = 1. If the physician is in general practice, for him SP = 0; if the physician is in other than general practice, for him SP = 1. If the physician is in the control group, for him G = 0; if the physician is in the experiment, for him G = 1. These are dummy variables, used in the regression equation, to permit us to analyze the significance of these characteristics quantitatively.

What follows is in fact a variant of how the basic regressions are to be set up. It has the merit of allowing us to examine the standard errors of particular coefficients.^{2/} Now consider the experience of the 2 groups of physicians during the experiment, taking x_i , total allowed charges for Medicare Part B covered services of a physician in a period, for our dependent variable. Next we point the following relationship:

$x_i = a + bAC_i + cSP_i + dG_i + U_i$, where U_i is the stochastic component.

^{1/} Analysis of covariance tables for differential intercepts and for differences in the complete relationship and the appropriate F tests are given in, for example, J. Johnston, Econometric Methods, 2nd edition (New York: McGraw-Hill Book Company, 1972). Throughout this section we have followed Johnston's exposition of the basic concepts.

^{2/} Johnston, Econometric Methods, pp. 204-207.



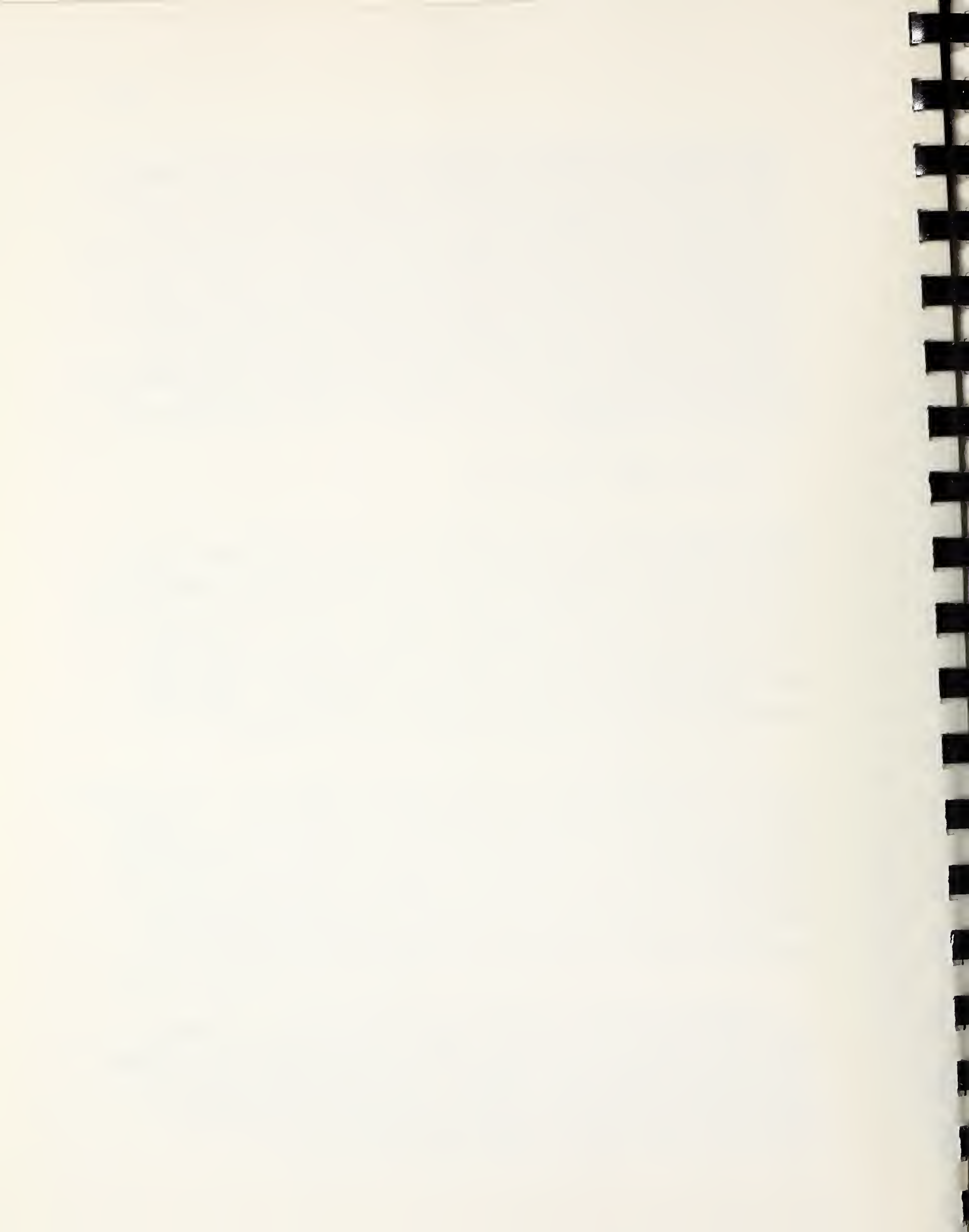
This formulation greatly simplifies the pattern of impact of these variables; the age-cohort effect is constant at all combinations of specialty and experimental status (when estimated, it is \bar{b}); the specialty effect is constant at all combinations of age-cohort and experimental status (when estimated, it is \bar{c}); and the experimental-status effect is constant at all combinations of age-cohort and specialty (when estimated, it is \bar{d}). When the posited relationship is estimated by regressing x_i on these 3 dummy variables, AC, SP and G, it becomes:

$$\bar{x} = \bar{a} + \bar{b}AC + \bar{c}SP + \bar{d}G$$

Specifically here, class effects of the kind we have been discussing are brought about by variation in G, experimental/control status. However, the manner of variation of both AC and SP is in no way different from that of G. Therefore, class effects are special cases of regressions where some of the independent variables are dummy variables. Here the variables AC and SP play the role of X in figure 7.

If the estimates \bar{b} , \bar{c} and \bar{d} differ from 0 in a statistical sense, the implications are extremely interesting. Whether this is so can be readily ascertained because in estimating the parameters b, c, and d by regression analysis, one also estimates the standard errors of the estimated parameters. The small x_i 's are actually averages of the doctors in a given age cohort, specialty and experimental/control status.

Should \bar{b} be significantly different from 0, it would mean that there is a genuine effect of age cohort x, average total allowed physician charges. For all combinations of specialty and experiment status, the value of \bar{x} differs between the one and the other age cohort by \bar{b} .



Similarly, should \bar{c} be significantly different from 0, it would mean that there is a genuine effect of specialty on x . For all combinations of age cohort and experimental/control status, the value of x differs between the 2 kinds of specialty by \bar{c} .

The most interesting eventuality of all occurs should \bar{d} be significantly different from 0. We control for the effects of both age cohort and specialty because the 2 physician blocks we are comparing are identical; everyone's age cohort and specialty are the same. Yet when we vary experiment status -- that is, switch from the control group to the experimental group or vice versa -- mean total allowed physician charges rise or fall by approximately \bar{d} ; moreover, it appears we can rule out this happening by chance. (Here is where the standard error of the estimate comes in.) Most interestingly of all, since the effect of experimental/control status, if it exists, has been posited to be a constant d for all age-cohort specialty blocks, the estimate of \bar{d} multiplied by the number of physicians volunteering for the experiment is an estimate of the difference between total allowed physician charges under the alternative reimbursement system and total allowed physician charges under the Medicare Part B method.

Our illustration could be generalized to include the pre-experiment experiences of both physicians in the experimental group and physicians in the control group. This generalization will raise some interesting analytical points. First, the dependent variable, x_i , now has to be dated: x_i becomes x_{it} , where $t = 1, 2$. The 2 pre-experiment years can be $t = 1$; the 2 experiment years, $t = 2$. Second, let us define a variable T , so that when $t = 1$, $T = 0$, and when $t = 2$, $T = 1$. Third, let us rewrite our initial relationship in the manner below, incorporating T :



$$x_{it} = a + bAC_i + cSP_i + dG_i + eT + fG_iT + u_i$$

(AC_i , SP_i and G_i , rather than AC_{it} , SP_{it} , and G_{it} , might be rationalized in one of 2 ways: AC_i , SP_i , and G do not change over time; alternatively, they do change, but we always (in both $t = 1$ and $t = 2$) attribute to the physician the values of AC_{it} , SP_{it} , and G_{it} in $t = 2$; i.e., during the experiment. (In fact G_{it} has no meaning as there is no experimental physician group in the pre-experiment years.)

Next, the relationship is estimated. To make our points, we need to concern ourselves only with the last 3 terms:

$$\hat{d}G + \hat{e}T + \hat{f}GT$$

Here, \hat{d} , as well as \hat{a} , \hat{b} , and \hat{c} , probably will not be the same as in the earlier estimation; nor should they be. We will assume that \hat{d} , \hat{e} , and \hat{f} , each, are statistically significant.

T = 0		T = 1	
G = 0	G = 1	G = 0	G = 1
--	\hat{d}	\hat{e}	$\hat{d} + \hat{e} + \hat{f}$

In the present context, the significance of \hat{d} indicates that in the pre-experiment period there was a difference in the mean x 's of future volunteers for the experiment and some of their counterparts in the physician population. Why is this so, if we have created for the volunteers a matching group on the basis of age cohort and specialty class? In other words, if we control for 2 variables we consider

important, why is \hat{d} significant? There are 2 possibilities: The 2 variables used aren't important; there are other important variables besides these two.

The significance of \hat{e} indicates the presence of temporal effects; one effect could be the business cycle, e.g., a switch from good to bad times; one could be the sharp rise in malpractice insurance premiums.

Now compare:

$$(T = 1; G = 0) - (T = 0; G = 0) = \hat{e}$$

$$(T = 1; G = 1) - (T = 0; G = 1) = \hat{e} + \hat{f}$$

The control group felt the temporal effects; the physician group that volunteered for the experiment also felt the temporal effects (something like a business cycle or malpractice insurance would affect both groups); but it also felt something else: \hat{f} . What had happened, of course, was that an alternate method of reimbursement was offered to physicians in the period ($T = 1$) and these physicians ($G = 1$) had chosen to take advantage of it. Logically, \hat{f} measures the pure (net of any temporal effects) alternate reimbursement system effect. The difference between the mean x of matching (nonvolunteer) physicians in the pre-experiment period and the mean x of the volunteer physicians during the experiment is made up 3 distinct effects:

1. \hat{d} : a largely unexplained pre-experiment difference between the 2 groups.

2. \hat{e} : temporal effects like business cycles and the sudden inflation of malpractice insurance premiums felt by both.

3. \hat{f} : the effect of the alternate reimbursement system felt only by the physicians in the experiment.

4.4 Presentation of Findings and Data

4.4.1 The Presentation of Findings

The presentation of findings will be in narrative and mathematical form. The latter will begin with a statement of the model, using mathematical notation. For example:

$$V = V(W_1, W_2, \dots, W_n)$$

or

$$V = a + bW_1 + cW_2 + \dots + ZW_n$$

At this stage, we envision that all of our models will be of the single-equation variety. The parameters of these models (a, b, c, \dots, Z) will be estimated, and the results will be summarized in tables that identify the model or the equation and show all the estimated parameters, the standard errors of these estimates, the number of observations from which the model was estimated, and the coefficient of determination, the R-squared. (For an example see table 17.) These might be supplemented with charts showing the actual scatter of points and the "fitted" line or curve that results from the estimation.

Where the test of hypotheses involves comparing 2 specially constructed Laspeyres and Paasche indexes, the results might be presented as in table 18.

Table 17. The Influence of Socioeconomic Factors on the Rate of Change of Medicare Physicians' Fees, the Assignment Rate, SMI Reimbursement per Enrollee, Percent Reduction of Physicians' Fees, and the Increase in Medicare Physicians' Fees

Independent variables and R	Dependent variables							
	The rate of change of Medi-care physicians' fee, 1967-69 (eq. 1)	(eq. 2)	Assignment rate 1969 (eq. 3)	SMI "Money" reim-bursement per enrollee, 1969 (eq. 4)	SMI "Real" reim-bursement per enrollee, 1969 (eq. 6)	Percent reduction of phys. fees, 1969 (eq. 8)	The in-crease in Medicare phys. fee, 1967-69 (eq. 9)	
Constant.....	19.604	18.592	104.683	155.461	14.358	14.773	-2.475	3.054
West.....	9.100 (3.245)	9.003 (3.184)		12.625 (5.496)	.148 (1.244)	1.301 (1.249)	.317 (.754)	.956 (.284)
City.....			-.250 (.128)					
White.....			.018 (.126)	.144 (.203)	-.051 (.046)		-.020 (.024)	
Phys.....	-.097 (.090)	-.117 (0.067)	.236 (.095)					-.005 (.008)
Phys-Spe.....				.855 (.392)	-.022 (.089)	.049 (.073)	-0.030 (0.054)	
PMSI.....	.223 (.157)	.209 (.149)	.251 (.150)	-.374 (.267)	-.132 (.061)	.037 (.036)	.020 (.014)	
Age.....	-1.021 (.489)	-1.012 (.481)	-.078 (.605)	-2.648 (.984)	-.083 (.223)	-.235 (.205)	-.146 (.043)	
NBI.....	.347 (.172)	.340 (.168)	-.460 (.171)	-.260 (.291)	.059 (.066)	.045 (.070)	.026 (.015)	
Income.....	-.00134 (.00390)		-.01103 (.00399)	.01306 (.00628)	.00298 (.00142)		.00186 (.00087)	.00021 (.00034)
Multiple cor-relation coefficient, R.....	.6577	.6559	.7183	.7939	.5899	.3500	.5235	.7416

Note: Entries in parentheses denote standard errors.

Source: Robert R. Nathan Associates, Inc., "The Effects of the Medicare Method of Reimbursement on Physicians' Fees and on Beneficiaries' Utilization," in A Report on the Results of the Study of Methods for Reimbursement for Physicians' Services Under Medicare, U.S. HEW SS Publication No. 92-73 (10-73), vol. I, part I, p. 37.

Table 18. Comparison of Physicians' Fee Indexes for
Selected Common Procedures under Two Screens:
Blue Shield's "UCR" and Medicare's "CPR"

Carrier	Indexes ^a of actual charges		Indexes ^a of allowed charges	
	Medicare	Blue Shield	Medicare	Blue Shield
Maryland Blue Shield:				
1969.....	100.00	100.00	100.00	100.00
1970.....	104.90	104.90	100.80	106.20
1971.....	106.80	110.40	102.60	109.60
Number of pro- cedures.....	24	24	24	24
Michigan Blue Shield:				
1969:				
1st quarter...	100.00	100.00	100.00	100.00
2nd quarter...	102.30	102.70	104.40	105.40
3rd quarter...	102.40	104.30	104.40	108.10
4th quarter...	103.40	106.50	104.80	109.50
1970:				
1st quarter...	105.10	108.10	104.50	108.30
2nd quarter...	106.20	109.60	100.60	102.30
3rd quarter...	108.20	109.00	101.00	99.10
4th quarter...	107.40	109.00	99.80	98.60
1971:				
1st quarter...	110.20	110.40	102.40	108.70
2nd quarter...	112.00	111.80	106.10	110.10
3rd quarter...	112.60	113.90	105.60	111.80
4th quarter...	113.80	115.20	107.30	112.20
1972:				
1st quarter...	114.00	115.30	106.50	112.50
Number of pro- cedures.....	19	19	19	19

Note: Common procedures refer to procedures of approximately equal importance to persons over and under 65, and of nearly equivalent performance difficulty. The lists of common procedures of Maryland and Michigan are given in appendix B. The selection methodology employed by NABSP is also to be found there. UCR means usual, customary, reasonable; CPR means

continued--

Table 18. continued --

customary, prevailing, reasonable. These terms, which are described in detail elsewhere, are the Blue Shield and Medicare bases, respectively, for determining allowed physicians' charges. Data for comparisons were available only for Maryland and Michigan Blue Shield.

a/ The Laspeyres formula was employed.

Source: SS Publication No. 92-73(10-73), vol. II, part I, pp. 50-51, (see table 17).

4.4.2 The Presentation of Basic Data

The basic data that come into our bank will have to be further organized into a research tape, since basic data typically need to be transformed in various ways before hypotheses can actually be tested by means of covariance, regression and correlation analyses. Constructing a research tape means taking basic data and transforming them into the operationally defined variables required by our models. For example, we may not want to use a physician's age as a variable, but create 2 new variables that take on the values 0 and 0 respectively when a physician is below a certain age; 1 and 0 respectively when he is above a certain age; and 0 and 1 respectively when he is in between. Many such transformations of the basic data are involved in the preparation of a suitable research tape. Presentation of the basic data will also include a variable name dictionary.

Where the basic data are handled as continuous variables, the sample distribution can be summarized in tables by averages and standard deviations, as well as by discrete frequency and cumulative frequency distributions. (See table 19 and figures 8 and 9.) Other basic data can more usefully be handled as dummy variables. Here we would present counts from the tape. (See table 20.)

4.4.3 Confidentiality of Data

Apart from the processing of claims, access to data concerning individual beneficiaries and providers is required only for statistical purposes, to analyze the experiences of experimental and control groups. We foresee that information concerning the experience of providers and beneficiaries

Table 19. Frequency and Distribution of Family Income, Restricted Sample

Family income class (\$)	Family income			
	Frequency	Percent	Distribution	Percent
Sample with known income				
Less than 1,000...	323	9.78	323	9.78
1,000-1,999.....	698	21.12	1,021	30.90
2,000-2,999.....	627	18.98	1,648	49.88
3,000-3,999.....	473	14.32	2,121	64.20
4,000-4,999.....	323	9.78	2,444	73.98
5,000-7,499	378	11.44	2,822	85.42
7,500-9,999.....	164	4.96	2,986	90.38
10,000-14,999.....	181	5.48	3,167	95.86
15,000 and over...	137	4.14	3,304	100.00
Total.....	3,304	100.00		
Sample with known and unknown income				
Less than 1,000...	323	8.2	323	8.2
1,000-1,999.....	698	17.7	1,021	25.9
2,000-2,999.....	627	15.9	1,648	41.8
3,000-3,999.....	473	12.0	2,121	53.8
4,000-4,999.....	323	8.2	2,444	62.0
5,000-7,499.....	378	9.6	2,822	71.6
7,500-9,999.....	164	4.1	2,986	75.7
10,000-14,999.....	181	4.6	3,167	80.3
15,000 and over...	137	3.5	3,304	83.8
Unknown.....	650	16.4	3,954	100.2
Total.....	3,954	100.2		

Note: This restricted sample, which is often used in testing and estimating, consists of persons who are SMI enrollees, who have had 12 interviews, and for whom the relevant prices and the assignment rate are available.

Source: SS Publication No. 92-73(10-73), vol. II, part II, p. 108, (see table 17).

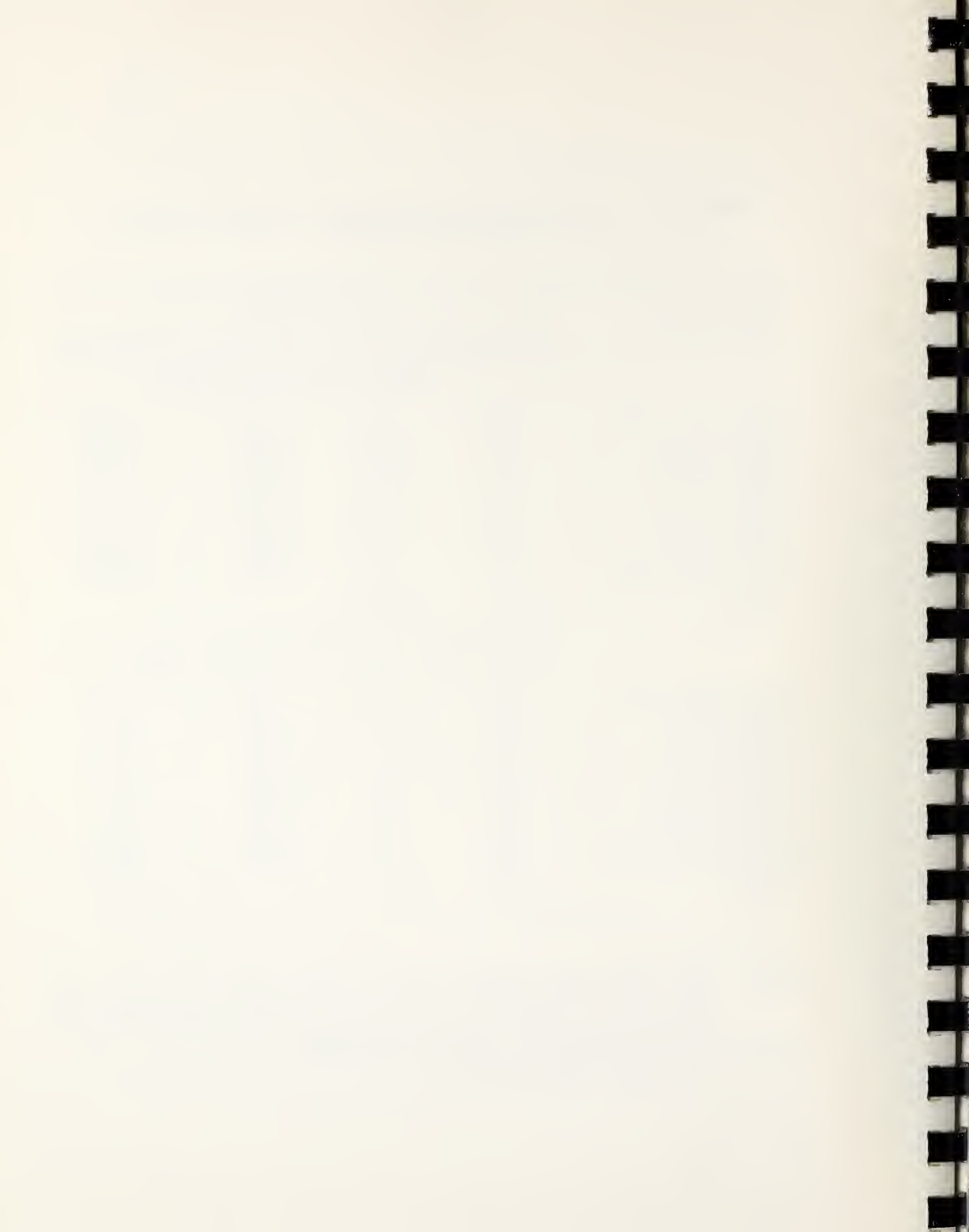


Figure 8. Relative Frequency of Family Income, Restricted Sample, Income Known

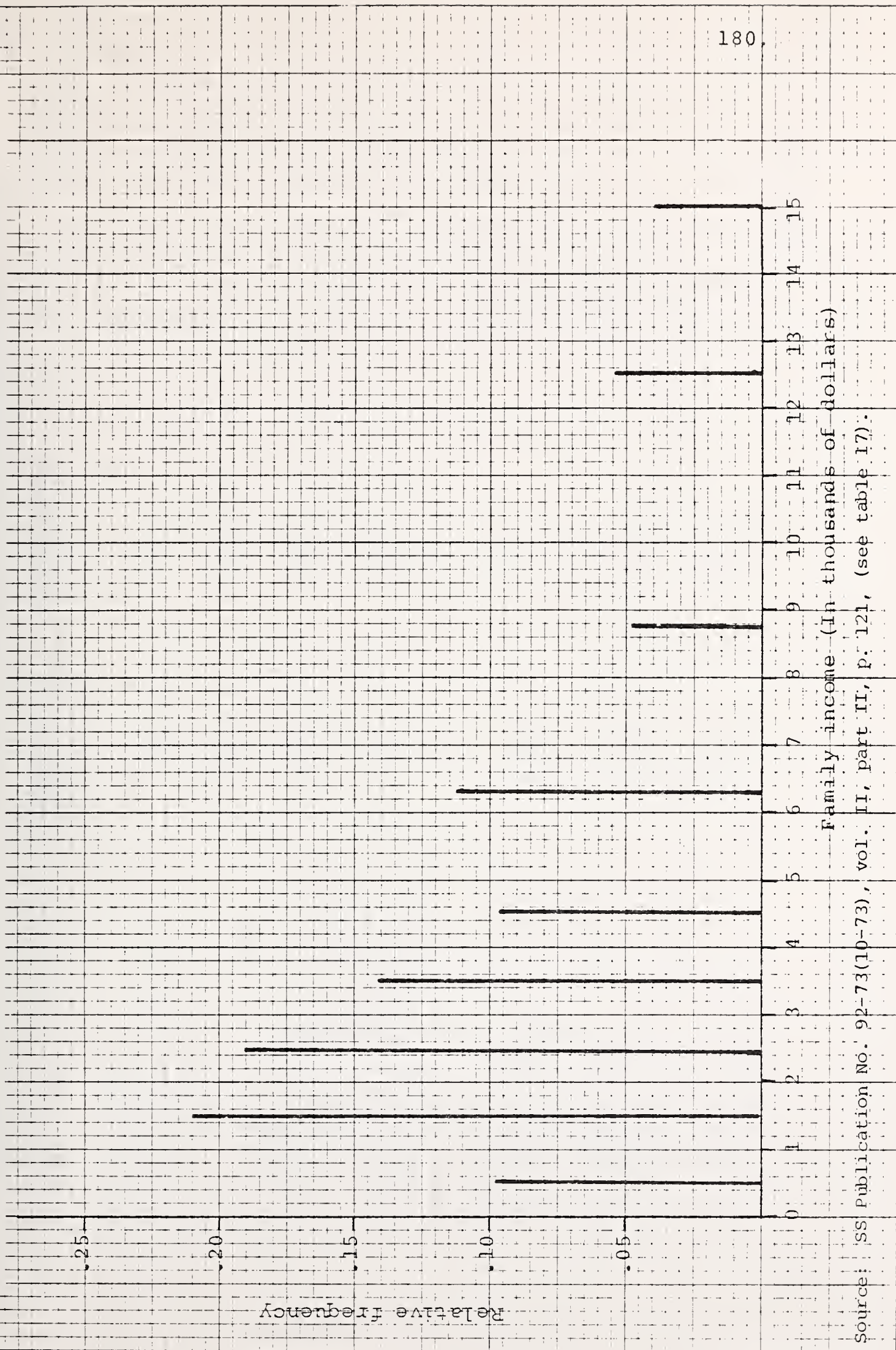




Table 20. Robert R. Nathan Associates 12-Month Tape File (January-December 1969)

Item	Number of observations	Distribution in percent	Variable number (s)
Sample persons:			
Basic sample.....	4,399	96.3	2
2 not enrolled sample.....	168	3.7	0
Stay in-hospital:			
No.....	3,568	78.1	3
3 yes.....	999	21.9	0
User status:			
Not using services.....	637	14.0	4
4 using services.....	3,930	86.0	0
User status, covered services:			
Not using services.....	637	14.0	5
5 using covered services....	3,637	79.6	6
6 using noncovered services only.....	293	6.4	0
Insurance status, sections I-III:			
No insurance.....	1,400	30.7	7
7 partial insurance.....	2,773	60.7	8
8 full insurance.....	394	8.6	0
Insurance status, section I:			
No insurance.....	2,218	48.6	9
9 partial insurance.....	2,039	44.6	10
10 full insurance.....	310	6.8	0
Insurance status, section II:			
No insurance.....	2,071	45.4	11
11 partial insurance.....	2,248	49.2	12
12 full insurance.....	248	5.4	0

continued--



Table 20. continued--

Item	Number of observations	Distribution in percent	Variable number(s)
Insurance status, section III:			
No insurance.....	3,155	69.1	13 14
13 partial insurance.....	1,267	27.7	0 0
14 full insurance.....	145	3.2	1 0
Deductible met status:			
Met.....	2,262	49.5	0 1
15 not met.....	2,305	50.5	15
Region and size of community:			
Northeast urban.....	1,068	23.5	16 17 18 19 20 21 22
16 Northeast rural.....	203	4.4	0 0 0 0 0 0 0
17 North Central urban.....	990	21.7	1 0 0 0 0 0 0
18 North Central rural.....	382	8.4	0 1 0 0 0 0 0
19 West urban.....	564	12.3	0 0 0 1 0 0 0
20 West rural.....	71	1.5	0 0 0 0 1 0 0
21 South urban.....	844	18.5	0 0 0 0 0 1 0
22 South rural.....	445	9.7	0 0 0 0 0 0 1
Living arrangement:			
In institution.....	252	5.5	23
23 not in institution.....	4,315	94.5	0 1
Household size:			
1 person.....	1,395	30.5	24 25
24, 2 or more persons.....	2,898	63.5	0 0
25 unknown.....	274	6.0	1 0
Race:			
White.....	4,185	91.6	26 27
26 Negro.....	360	7.9	0 0
27 all other or unknown.....	22	0.5	1 0 1
Marital status:			
Married.....	2,048	44.8	28 29
28 nonmarried.....	2,213	48.5	0 0
29 unknown.....	306	6.7	1 0 1

will be handled in such a way as to permit it to be fed into the records of the data bank to provide statistical data without identifying individuals. Wherever information concerning individuals identified by name is handled, in collection or processing, whether by staff of the experiment or by the fiscal agent, the strictures of confidentiality would apply as they do under present Medicare procedures.





APPENDICES

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Mr. Edward D. Hollander
Senior Vice President
Robert R. Nathan Associates, Inc.
1200 Eighteenth Street, N.W.
Washington, D.C. 20036

Dear Mr. Hollander:

This is in response to your request, made on behalf of Robert R. Nathan Associates, Inc. ("Nathan"), that we review the antitrust aspects of The Protocol of an Alternative Reimbursement System for Part B of Medicare, to which this letter will be attached. The protocol was prepared by Nathan in accordance with Social Security Administration ("SSA") Contract No. 600-75-0188, dated June 12, 1975. That contract had been awarded to Nathan pursuant to authority vested in the Secretary of Health, Education and Welfare by Section 222(b) of Public Law 92-603, as amended, 42 U.S.C. §1395b-1 (commonly known as the Social Security Amendments of 1972).

Section 222(b) authorizes the Secretary --

to develop and engage in experiments and demonstration projects . . . to determine whether, and if so which, changes in methods of payment or reimbursement . . . for health care and services under health programs established by [the Medicare Act], including a change to methods based on negotiated rates, would have the effect of increasing the efficiency and economy of

Mr. Edward D. Hollander
October 31, 1975
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health services under such programs through the creation of additional incentives to these ends without adversely affecting the quality of such services
[Emphasis added.]

The protocol designed by Nathan is an experimental program covering Part B Medicare services. It provides for fee reimbursement to participating physicians based on negotiated rates.

The Nathan experimental program, if authorized by SSA, would be established in Montgomery and Prince Georges Counties, Maryland, for a period of two years. The reimbursement phase of the experiment would involve the use by physicians who elect to participate in the program -- and only by those physicians -- of relative value scales for various medical services. SSA would promulgate the relative value scales and certain conversion factors which would be applied to those values to determine the amounts of the participating physicians' reimbursable fees. The promulgation of relative value scales and conversion factors would follow negotiations and consultations by SSA officials with selected advisors who would have been approved by SSA in advance. The advisors to SSA would consist of physicians, representatives of the fiscal intermediary, and representatives of beneficiary interests. A panel appointed by the Chairman of the Health Insurance Benefit Advisory Counsel ("HIBAC") would preside over the negotiating process.

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October 31, 1975
Page Three

It is our opinion that implementation of the experimental program set forth in the attached Nathan protocol (and briefly summarized above) would not constitute actionable price-fixing under the federal antitrust laws.

The outline of our rationale is as follows:
Section 222(b) of the 1972 Social Security Amendments empowers the Secretary of HEW to conduct, either directly or indirectly through grants or contracts, experiments and demonstration projects designed to ascertain methods for lowering the costs and increasing the efficiency of health services provided by physicians under the Medicare program. The language of Section 222(b) and its legislative history demonstrate that Congress was concerned with curbing the escalating costs of Medicare health services, and that Congress envisioned reimbursement experiments based on negotiated rates as one important data gathering tool for future legislative action in this area.

In our view, application of the federal antitrust laws to the Nathan protocol experiment -- which is extremely limited in geographic scope and is purely voluntary in physician involvement -- would frustrate a principal aim of §222(b) and would unduly interfere with the operation of the 1972 amendments. For, if the limited Nathan experiment with negotiated rates were to be deemed unlawful on antitrust grounds, it is difficult to imagine any negotiated

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rates experiment that could survive an antitrust challenge. Moreover, since the Nathan experiment requires that the relative value scales for various medical services and their conversion factors be promulgated by SSA, the fees of participating physicians would effectively be determined and mandated by the federal government. And there is no question but that direct governmental action cannot be successfully challenged under the antitrust laws.

Sincerely,

ARENT, FOX, KINTNER, PLOTKIN & KAHN

By: George R. Kucik
George R. Kucik



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October 30, 1975
RHN-75/0252

Mr. Edward D. Hollander
Senior Vice President
Robert R. Nathan Associates, Inc.
1200 Eighteenth Street, N. W.
Washington, D. C. 20036

Dear Mr. Hollander:

You have requested our view as to whether the "Protocol of an Alternative Reimbursement System for Part B Medicare," prepared by Robert R. Nathan Associates, Inc. pursuant to a contract with the Social Security Administration, adequately protects the right of Medicare beneficiaries under the Medicare Act to assign or not assign their claims.

A central feature of the Protocol is a requirement that physicians participating in the alternative reimbursement system agree to accept assignment of claims from all of their patients having Medicare Part B coverage. This obligation to accept assignment would be provided for in an agreement between each participating doctor and the Social Security Administration or its fiscal intermediary. However,

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the Protocol (and the form agreement) would permit the participating physician to provide services on an unassigned-claim basis to those beneficiaries who chose not to assign their Medicare Part B claims.

Under the Medicare Act, an eligible beneficiary may receive Medicare payment directly for covered Part B services, or he may assign his Medicare claim for such payment to the physician or other person who provided the services, if the doctor or other person accepts assignment. (Act, Sections 1832, 1842.) If the Social Security Administration were to require physicians participating in the alternative reimbursement system to refuse to provide services unless the beneficiary assigned his claim, such a requirement might be viewed as inconsistent with the beneficiary's right not to assign and as an interference with the patient's free choice of a physician guaranteed under Section 1802 of the Act.

This problem is avoided under the Protocol as presently structured. While the Protocol requires that the participating physician agree to accept assignment of Medicare claims, it does not make assignment by patients mandatory. The participating physician would not be restricted by the terms of the Protocol from rendering services to Medicare beneficiaries who chose not to assign their claims, and he

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could bill them for his services, as presently is the case. Therefore, it is our opinion, based upon the facts as you have presented them to us, that the alternative reimbursement system set forth in the Protocol does not infringe on the right of beneficiaries under the Medicare Act to elect not to assign their claims.

Sincerely,

ARENT, FOX, KINTNER, PLOTKIN
& KAHN

By Robert H. Neuman
Robert H. Neuman

APPENDIX B. RATIONALE BEHIND REJECTION OF SYSTEM ELEMENTS DISCUSSED IN PROPOSAL

Our proposal of October 4, 1974, indicated that several alternative elements would be considered in developing the reimbursement system. After due deliberation and for a variety of reasons, some of these elements were discarded and are not incorporated in the system design. Among the ideas rejected were the following: primary-care physician management; line of credit; and changes in the benefit package.

Primary Care Physician Management

An important reason for considering ways to promote a patient's entry into the medical care system through a single gate, namely a primary-care physician or managing physician, is the belief that there could be savings achieved by careful channeling of the patient. It could eliminate "shopping around" among doctors for a particular condition or bring about use of alternatives to expensive hospital care.

In some Canadian provinces, a special feature of the insurance plan puts a financial penalty on the insured patient if he goes directly to a specialist rather than being referred by his general practitioner. Specialists are ordinarily paid at a higher rate by the insurance scheme but are paid at the GP rate if the patient goes directly to them. The patient must make up the difference between the GP's and the specialist's fees.

In the United States it is common practice for patients to go directly to many specialists, bypassing their regular doctor. For example, eye, ear, nose and throat doctors often see patients without referral. The same holds for gynecologists, surgeons, and internists, to name a few. Some of these specialists actually function as primary-care physicians or managing physicians.

Discussions with the physician consultants led to our conclusion that practice patterns in the United States would not lend themselves to setting up a financial distinction between general practitioners and specialists based on doctor-referral or self-referral. Doctors objected to the idea of refusing to serve patients because of self-referral. The alternative of paying specialists a higher rate for doctor-referred patients than self-referred patients is likely to increase total costs. Moreover, we see no way of insisting on linking patient and physician when the law says there shall be freedom of choice of doctors by the beneficiary.

Line of Credit

In our proposal we indicated that:

Among other possible incentives to voluntary participation that may be included in the experiment is the development of a "line of credit" for physicians. Based on an estimate of billings for covered services under Part B in a recent period of time, a monthly drawing account or line of credit would be established for each doctor agreeing to participate.

Let us assume the estimate yields \$1,000 per month as the revenue the doctor anticipates from Medicare Part B eligible patients. The first month of the program the doctor would receive an advance of \$1,000 from the fiscal intermediary. Thereafter, on the first of

each month the physician would receive a statement from the fiscal agent showing payments made to him for the entire bill for all his Medicare patients during the prior period and an advance to bring his account back up to \$1,000 (or another agreed-on figure). After a few month's experience, the size of the advance could be reviewed and adjusted for each doctor.

Our doctor consultants discounted the attractiveness of an advance of the size mentioned in the proposal, pointing out that many doctors have tens of thousands of dollars in accounts receivable and are accustomed to operating with lags in payment. An arrangement that was applicable to a small segment of a doctor's practice would not really solve any problems of cash flow, should he have them. An advance sufficiently large to induce doctors to volunteer and participate in the experiment would probably not appeal to SSA. In the doctors' view, the bookkeeping required to keep track of the advance would offset any benefits from the additional capital. The doctors concluded that a line of credit would not provide an incentive to participation.

Changes in the Benefit Package,
Locus of Service and Personnel
Requirements

Our proposal said:

The present array of covered benefits, the locus of services and the type of health personnel required will be reviewed by our physician advisory board, as well as the record of services provided to beneficiaries in this area under Part B in the last year. The review is the basis for recommendations regarding changes in the benefit package that

might reduce or contain aggregate program and beneficiary costs, without adversely affecting quality of or access to care, through more efficient use of medical manpower, hospitals, extended care facilities, and home health care services. Disincentives to noninstitutionalized care would be removed. Diagnostic tests in the office, physical therapy at home and extended provision of a range of home health care services in lieu of institutionalized care are examples of cost-savings alternatives that will be examined in the review of the benefit package. The quality standard of personnel (M.D. vs. R.N. vs. allied health personnel) under direct or indirect doctor supervision will be considered also. The mechanics of establishing a peer review for the appropriateness of both the services rendered and the place performed will be worked out with the advisory medical board and the staff of the medical groups.

A review of covered services was made, and we examined those services not included in Medicare, listed in appendix table B-1. We considered the possibility of removing the deductible and coinsurance liability on outpatient radiology and laboratory procedures in order to eliminate the monetary incentive to have such services performed in hospitals.

However, one of our consultants, Dr. Paul J. Feldstein of the University of Michigan, pointed out that our preliminary design contained elements of a reimbursement system that could be grouped into those affecting a price change and those producing a benefit change. These element groupings are independent of each other and should be viewed as separate experiments. To conduct both experiments simultaneously would cloud the results and create possibly irresolvable problems in analyzing the impact of each group of elements upon costs.

After study, an approach to introducing incentives to home health care services was devised. It has been included in the design of the alternate system.

We explored the subject of personnel requirements, the quality of standards of personnel and peer review with our physician consultants, and we discussed the current utilization review procedures with D.C. Blue Shield. The doctors' organizations are functioning as PSRO's and have not yet overcome some difficulties in that program. One doctor consultant flatly said, "If you think we're also going to get involved in a peer review of ambulatory care, forget it." The decision was made to function during the experiment within the procedures currently in use in the Medicare program.

Appendix Table B-1. Services Not Included in Medicare

drugs

- . Prescribed drugs and biologicals are excluded.
- . Three pints of blood per calendar year are excluded.
- . Prosthetic devices (eye glasses, hearing aids) are excluded.
- . Full-time nursing care is excluded.
- . Hospital care from 60 to 90 days is subject to a copayment, currently \$21 a day.
- . Care in an extended care facility from 21 days to 100 days is subject to a copayment, currently \$10.50 a day.
- . Mental health services are limited.
- . Routine physical check-up and tests related to it are excluded.
- . Foot care is excluded.
- . Immunizations are excluded.
- . Dentistry (except surgery of the jaw) is excluded.
- . Radiology and pathology and laboratory as outpatient services are subject to the deductible and coinsurance features of Part B.
- . Cosmetic surgery when not related to an accident or malfunctioning is excluded.
- . All physician's services are subject to the deductible (currently \$60) and the coinsurance features of Part B, equal to 20 percent of the reasonable charge.

APPENDIX C. METHODOLOGY FOR ESTIMATING CONVERSION FACTOR

There are several ways to calculate a conversion factor based on the prices and on the relative values of procedures:

1. Least-square estimate of conversion factor:

$$Y_i = \beta X_i + U_i$$

Y_i = price of procedure i

X_i = number of relative value scale of i -th procedures

U_i = random disturbance factor

N_i = frequency of the i -th procedure

The least-square estimate of conversion factor is:

$$\hat{\beta} = \frac{\sum N_i X_i Y_i}{\sum N_i X_i^2}$$

This estimate is the best linear unbiased estimate of conversion factor.

2. Weighted average of conversion factor:

$$\bar{C} = \sum N_i \left(\frac{Y_i}{X_i} \right) / \sum N_i$$

where Y_i/X_i represents the conversion factor of the i -th procedure. If we define $C_i = Y_i/X_i$, then the weighted variance of conversion factor can be estimated as:

$$\text{Var } (C) = \frac{\sum N_i (C_i - \bar{C})^2}{\sum N_i}$$

3. Simple mean of conversion factor:

$$\bar{C} = \frac{\sum \left(\frac{Y_i}{X_i} \right)}{T} = \frac{\sum C_i}{T}$$

where T represents the total number of procedures. The simple variance of the conversion factor is:

$$\text{Var } (C) = \frac{\sum (C_i - \bar{C})^2}{T-1}$$

4. Total expenditures approach: The conversion factor is equal to the ratio of total prices to total number of RVS units for all procedures; i.e.:

$$\tilde{C} = \frac{\sum N_i Y_i}{\sum N_i X_i}$$

This approach is used to calculate a conversion factor in appendix D, Methodology of Prospective Budgeting, and was used by Medicare Services of D.C. to compute the conversion factors in the D.C. metropolitan area based on physicians' customary charges in Medicare and Blue Shield in 1974. They are shown in appendix table C-1.

Appendix Table C-1. Conversion Factors for the Separate
Independent Sections of the Relative Value Scale,
Based on Physician Customary Charges, 1974^{1/}

	Conversion factor	
	50th percentile	75th percentile
Medical Care.....	\$3.10	\$3.50
Anesthesia.....	9.20	9.70
Surgery.....	7.50	8.40
X-ray.....	6.60	7.00
Laboratory.....	6.10	6.70

^{1/} Both Medicare and D.C. Blue Shield claims are data sources.

APPENDIX D. METHODOLOGY OF PROSPECTIVE BUDGETING

This paper will attempt to describe the steps involved in determining a prospective budget and to show how, in conjunction with a relative value scale, a prospective budget can be employed to derive conversion factors. To make matters simpler, we will assume that there is only one section to the relative value scale and that only a single conversion factor has to be derived. The fact that there are several sections in a relative value scale, and consequently that there are several conversion factors, does not change the logic of the steps we will outline; it only multiplies the work.

1. One begins with the most recent information available on the level and structure of utilization of services:

Procedure	Frequency	Relative frequency
Reduction of fracture of neck of femur.....	40	1.3
Amputation of lower leg.....	28	0.9
Biopsy of skin.....	1,432	65.2
Radical mastectomy.....	335	11.3
Bronchoscopy.....	630	21.3
Total.....	2,965	100.0

2. One might expect the future utilization of services to be higher than the current level; this might be so for a number of reasons: (1) more services per Medicare enrollee,

perhaps because assignment is more frequent, or because beneficiaries have become better insured; (2) more Medicare enrollees; or (3) both more services per Medicare enrollee and more Medicare enrollees. Consequently, one must forecast these two factors. For example:

Current number of enrollees:	1,000
Current number of services per enrollee:	$\frac{2,965}{1,000} = 2.965$

$$2.965 \times 1,000 = 2,965$$

If in the future we expect the number of services per enrollee to be 3 and the number of enrollees to be 1,100, we in effect expect future utilization of services to rise to 3,300.

3. Having forecast the number of services per enrollee and the number of enrollees, and thereby having forecast prospective utilization, one must decide whether the future level of utilization will be structured differently from the present level. The relative frequencies posited in our example are:

- 1.3 percent
- 0.9 percent
- 65.2 percent
- 11.3 percent
- 21.3 percent

But suppose we expect them to change to:

- 5.0 percent
- 2.0 percent
- 60.0 percent
- 15.0 percent
- 18.0 percent

This then leads to the following forecast of the breakdown of the utilization of services:

$$\begin{aligned}
 3,300 \times 0.05 &= 165 \\
 3,300 \times 0.02 &= 66 \\
 3,300 \times 0.60 &= 1,980 \\
 3,300 \times 0.15 &= 495 \\
 3,300 \times 0.18 &= 594
 \end{aligned}$$

4. Having a prospective level and a prospective structure of utilization, one can proceed to value utilization. For this, it is necessary to have a set of prices:

Procedure	Prices
Reduction of fracture of neck of femur.....	\$640
Amputation of lower leg.....	320
Biopsy of skin.....	30
Radical mastectomy.....	600
Bronchoscopy.....	175

Multiplying frequencies times prices we arrive at a total value of \$587,070.

5. To proceed to derive a conversion factor, one must have access to a relative value scale, assuming an acceptable one is available:

Procedure	Relative value scale
Reduction of fracture of neck of femur.....	70.0
Amputation of lower leg.....	40.0
Biopsy of skin.....	5.0
Radical mastectomy.....	80.0
Bronchoscopy.....	15.0

6. Just as in step 4 above we "valued" using prices, here we will "value" using the relative value scale; that is, we will transform the same breakdown of quantities or frequencies by procedure code into units of service using the relative value scale.

7. Multiplying frequencies times units of service from the relative value scale yields the total number of service units: 72,600.

8. If we take \$587,070 and divide it by 72,600, we obtain \$8.09 as the conversion factor. The process of deriving the conversion factor described above can be summarized by the following formula:

$$\frac{\sum N_i Y_i}{\sum N_i X_i} = \text{conversion factor}$$

where N_i represents frequency of services for the i -th procedures. X_i is its number in the RVS and Y_i is its price. The conversion factor is implicit in the level and structure of utilization (N_i), the prices (P_i) and the relative value scale (X_i). In the prospective budgeting, both the change in the utilization and the change in prices should be considered. In this methodology, the conversion factor is equal to the ratio of total prices to the total number of RVS units for all procedures.

APPENDIX E. BENEFICIARY STATUS IN THE EXPERIMENT

In our letter of April 22, 1975, we undertook to "examine the problems of Medicare beneficiaries of the simultaneous existence of the experimental insurance scheme side by side with the regular Medicare system, and [we] will incorporate into the research design a methodology for analyzing that problem".

The experimental design assumes that beneficiaries will not be aware of the experiment or what it is intended to test. The participating physician's office will tell the beneficiary what he needs to know about the new billing procedure and provide an explanatory handout. (See "Our New Billing System - An Information Sheet for Medicare Beneficiaries" at the end of section 2.6) This information sheet explains how the beneficiary will be billed for whatever is due on the deductible and coinsurance and to whom he should make these payments.

The alternate reimbursement system includes a beneficiary-service element relating to complementary insurance benefits. The information sheet will explain to the beneficiary the assistance to be provided and the procedure he is to follow. The alternate system involves a beneficiary/fiscal agent relationship that is somewhat different than that required for settling the beneficiary's deductible and coinsurance obligations under the existing program, and this too is explained in the information sheet.

We propose to amend the Explanation of Medicare Benefits (EOMB) forms to indicate clearly the beneficiary's liability, to point out when the form is a bill, to enclose a self-addressed envelope, and to include a telephone number to be

used by the beneficiary who has questions or problems. An analysis of the telephone communications will identify problem areas and possible solutions.

To obtain a measure of the comparability of characteristics of beneficiaries served by physicians in the experimental and control groups, the study team will assemble the following information about beneficiaries served by the respective groups and blocks within groups:

1. Average age of the beneficiaries served.
2. Sex distribution (male/female ratio) of beneficiaries served.
3. General socio-economic status as reflected by an average of the mean family income for the census tract in which the beneficiaries reside.

None of these data will be obtained from beneficiaries. Age and sex distributions for blocks of beneficiaries identified by account numbers can be obtained from the Social Security Administration. The last item will be derived from census data. The experimental design does not call for a beneficiary survey, except for those beneficiaries who refuse to assign their claims. In those few cases, we want to learn the reason for the nonassignment.

We have proposed to survey the volunteering doctors to find out if they are interested in using a plastic card and imprinter to fill out the identification information in Part I of Form 1490. If sufficient interest is shown, plastic cards will be distributed to their patients. We see no problem for the beneficiary since the plastic card is usable with an imprinter and legible if entries are made by hand.

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